



SERVICE MANUAL

144 MHz FM TRANSCEIVER

IC-2GXAT

IC-2GXET

IC-2GXA

IC-2GXE

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INTRODUCTION

This service manual describes the latest service information for the IC-2GXA/GXE, IC-2GXAT/2GXET VHF FM TRANSCEIVER at the time of publication.

MODEL	VERSION No.	VERSION	SYMBOL
IC-2GXA	#11	Asia	SEA
	#15	U.S.A.	USA
	#17	Australia	AUS
IC-2GXE	#12	Europe	EUR
	#13	United Kingdom	UK
	#14	Italy	ITA
	#16	Thailand	THA
	#19	Denmark	DEN
IC-2GXAT	#31	Asia	SEA
	#35	U.S.A.	USA
	#37	Australia	AUS
IC-2GXET	#32	Europe	EUR
	#33	United Kingdom	UK
	#34	Italy	ITA
	#36	Thailand	THA
	#39	Denmark	DEN

DANGER

NEVER connect the transceiver to an AC outlet or to a DC power supply that uses more than 16 V. This will ruin the transceiver.

DO NOT expose the transceiver to rain, snow or any liquids.

DO NOT reverse the polarities of the power supply when connecting the transceiver.

DO NOT apply an RF signal of more than 20 dBm (100 mW) to the antenna connector. This could damage the transceiver's front end.

ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit order numbers
2. Component part number and name
3. Equipment model name and unit name
4. Quantity required

<SAMPLE ORDER>

1180000530	IC	SC-81250HG	IC-2GXAT	MAIN UNIT	5 pieces
8810005720	Screw	Tapping B0 2 x 20 ZK	IC-2GXET	Rear panel	10 pieces

Addresses are provided on the inside back cover for your convenience.

REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits. An insulated tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 40 dB or 50 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.



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To upgrade quality, all electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

SECTION 1 SPECIFICATIONS

■ GENERAL

- Frequency coverage

MODEL	VERSION	FREQUENCY COVERAGE
IC-2GXA IC-2GXAT	U.S.A. Australia	144–148 MHz (TX/RX)
	Asia	144–148 MHz (TX) 140–150 MHz* (RX)
IC-2GXE IC-2GXET	Europe, United Kingdom Thailand, Denmark	144–146 MHz (TX/RX)
	Italy	144–148 MHz (TX) 136–174 MHz* (RX)

* Specifications guaranteed 144–148 MHz.

- Mode : F3 (16K0F3E)
- Tuning steps : 5, 10, 12.5, 15, 20, 25, 30 or 50 kHz
- Dial select steps : 100 kHz or 1 MHz
- Number of memory channels : 43 channels (40 regular channels, 1 call channel, and 2 scan edge channels)
- Antenna impedance : 50 Ω (nominal)
- Usable battery packs : BP-132A, BP-157A, BP-160 BATTERY PACKS,
BP-130A BATTERY CASE with six R6 (AA) size dry cell or Ni-Cd batteries
- External DC power supply : 6–16 V DC (negative ground)
- Current drain (typical; at 13.5 V) :

Transmit	High	2.0 A
	Low	900 mA
Receive	Rated audio output	250 mA
	Power saved	35 mA (average)

- Usable temperature range : –10 °C to +60 °C (+14 °F to +140 °F)
- Frequency stability : ± 15 ppm (at 0 °C to +60 °C; +32 °F to +140 °F)
- Dimensions

(projections not included)

with BP-160A, BP-157A or BP-130A	57 (W) x 125 (H) x 35 (D) mm; 2.2 (W) x 4.9 (H) x 1.4 (D) in
with BP-132A	57 (W) x 153.2 (H) x 35 (D) mm; 2.2 (W) x 6.0 (H) x 1.4 (D) in

- Weight
(with flexible antenna)

IC-2GXA	355 g; 12.5 oz (with BP-160)
IC-2GXE	340 g; 12.0 oz (with BP-130A and cells)
IC-2GXAT	365 g; 12.9 oz (with BP-160)
IC-2GXET	350 g; 12.3 oz (with BP-130A and cells)

■ TRANSMITTER

- Output power (at DC13.5 V) : 7 W (HIGH), 1 W (LOW)
- (at DC 7.2 V) : 3 W (HIGH), 1 W (LOW)
- Modulation system : Variable reactance frequency modulation
- Max. frequency deviation : ± 5.0 kHz (at 25 °C; +77 °F)
- Spurious emissions : Less than –60 dB (at 25 °C; +77 °F)
- Microphone impedance : 1 k Ω

■ RECEIVER

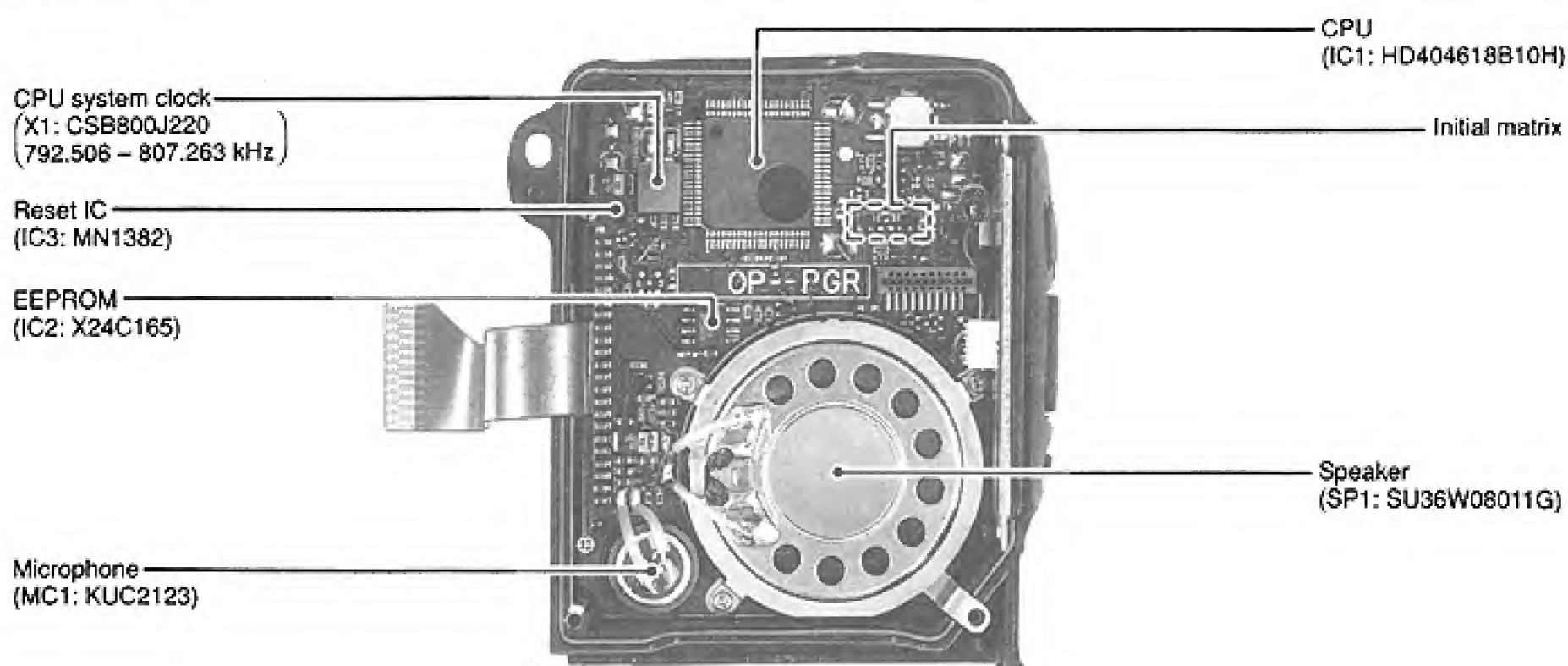
- Receive system : Double-conversion superheterodyne
- Intermediate frequencies : 1st 21.700 MHz
2nd 455 kHz
- Sensitivity : Less than 0.18 μ V for 12 dB SINAD
- Squelch sensitivity : Less than 0.16 μ V (at threshold)
- Selectivity : More than 15 kHz/–6 dB
Less than 30 kHz/–60 dB
- Spurious and image rejection ratio : More than 60 dB (at 25 °C; +77 °F)
- Audio output power : More than 350 mW at 10 % distortion with an 8 Ω load and DC 13.5 V.
- Audio output impedance : 8 Ω

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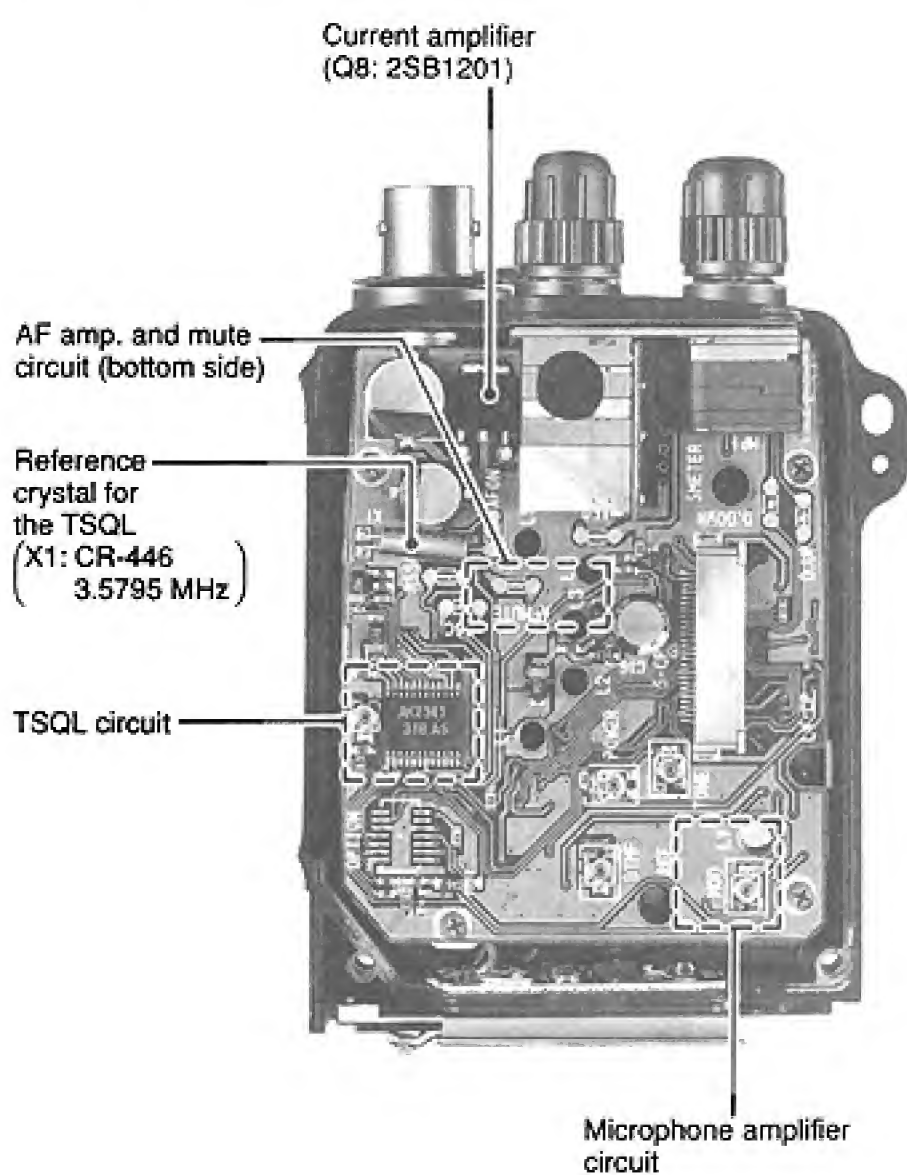
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

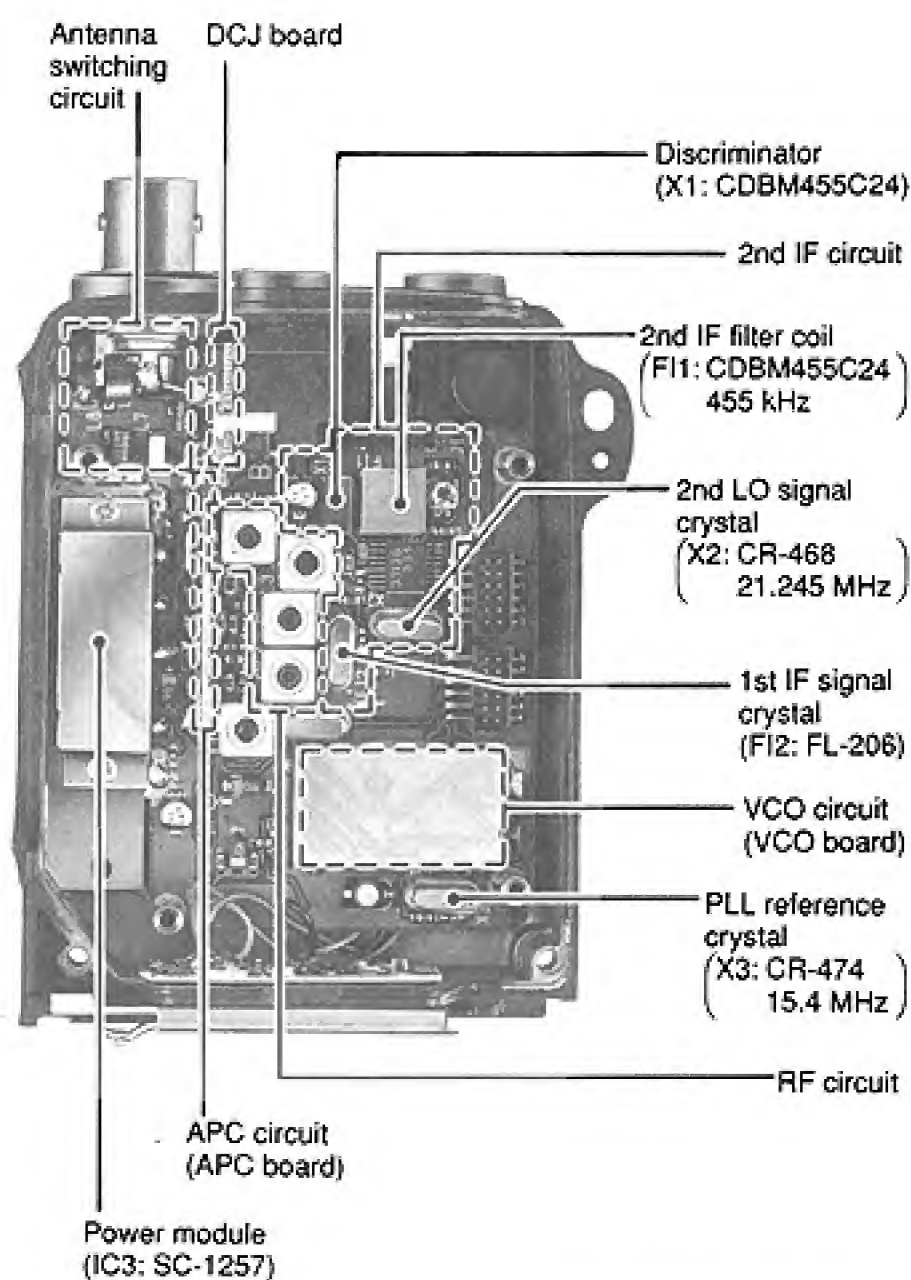
• LOGIC UNIT



• MAIN-B UNIT



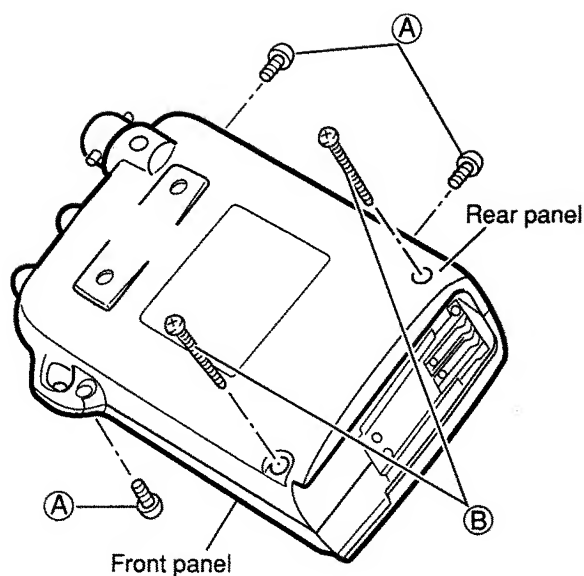
• RF UNIT



* This picture shows the IC-2GXET Europe version.

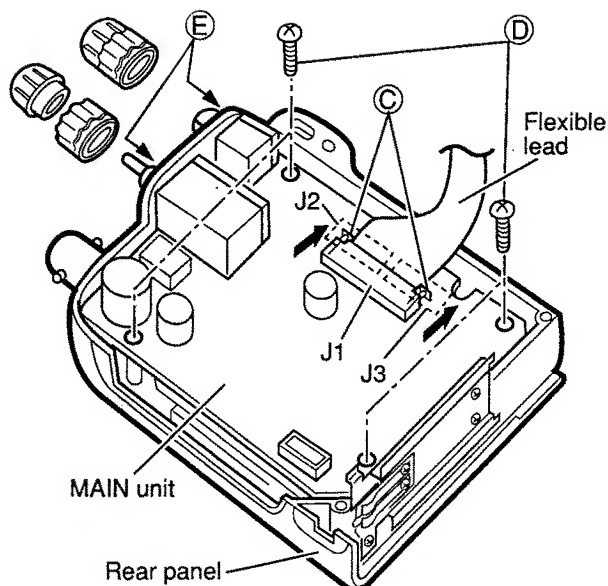
SECTION 3 DISASSEMBLY INSTRUCTIONS

Fig. 1



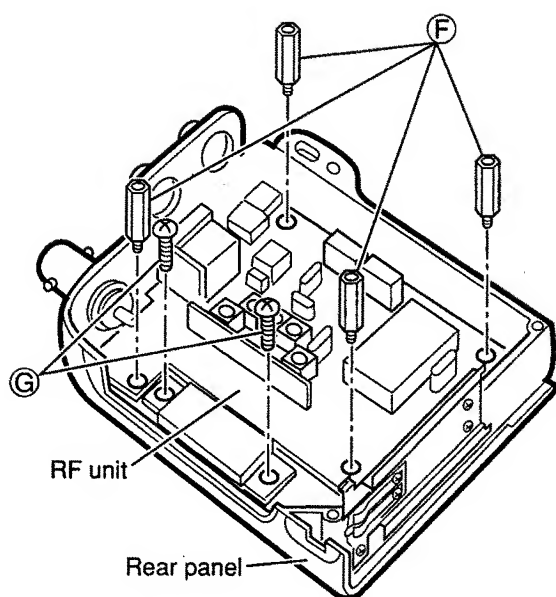
- ① Remove 3 screws, **A** (black, 2 x 3 mm), and 2 screws, **B** (black, 2 x 20 mm), to open the front panel.

Fig. 2



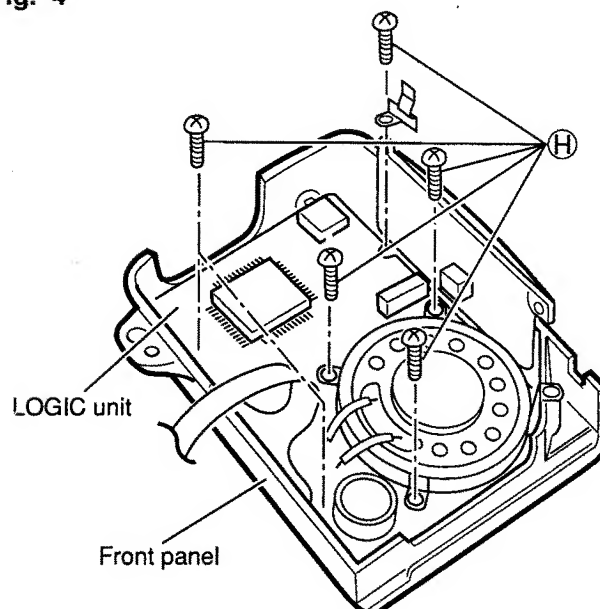
- ② Pull **C** of the connector J1 and unplug the flexible lead to separate the front and rear panels, then remove 4 screws, **D** (nickel, 2 x 3 mm), and 2 nuts, **E**. Unplug J2 and J3 under the MAIN unit, then remove the MAIN unit.

Fig. 3



- ③ Remove 4 stand-offs **F** and 2 screws, **G** (nickel, 2 x 3.5 mm).

Fig. 4



- ④ Remove 6 screws, **H** (nickel, 1.4 x 3.5 mm).

SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

4-1-1 ANTENNA SWITCHING CIRCUIT (RF UNIT)

Received signals pass through a low-pass filter (L9, L8, C36 – C41). The filtered signals are applied to the $1/4\lambda$ type antenna switching circuit (L7, C35, C34, L6, D5, C105).

The antenna switching circuit functions as a low-pass filter while receiving. However, its impedance becomes very high while D5 is turned ON. Thus, transmit signals are blocked from entering the receiver circuits. The antenna switching circuit employs a $1/4\lambda$ type diode switching system. The passed signals are then applied to the RF amplifier circuit.

4-1-2 RF CIRCUIT (RF UNIT)

The RF circuit amplifies signals within the range of frequency coverage and filters out-of-band signals.

The signals from the antenna switching circuit pass through a band-pass filter (L5, D4), and are then applied to the RF amplifier (Q3). The amplified signals are passed through the band-pass filter (L2 – L4, D1 – D3, C22 – C29) to suppress unwanted signals.

D1 – D4 employ varactor diodes that track the band-pass filters and are controlled by the PLL lock voltage. These diodes tune the center frequency of an RF passband for wide bandwidth receiving and good image response rejection.

4-1-3 1ST MIXER AND 1ST IF CIRCUITS (RF UNIT)

The 1st mixer circuit converts the received signal to a fixed frequency of the 1st IF signal with a PLL output frequency. By changing the PLL frequency, only the desired frequency will be passed through a pair of crystal filters at the next stage of the 1st mixer.

The signals from the RF circuit are mixed at Q2 with a 1st LO signal (122.3 – 126.3 MHz) coming from the VCO board to produce a 21.70 MHz 1st IF signal.

After passing through the matching circuit (L1), the 1st IF signal is applied to a pair of crystal filters (F12) to suppress out-of-band signals. The 1st IF signal is amplified at the IF amplifier (Q1) and applied to the 2nd mixer circuit (IC1 pin 16).

4-1-4 2ND IF AND DEMODULATOR CIRCUITS (RF UNIT)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal. A double superheterodyne system (which converts receive signals twice) improves the image rejection ratio and obtains stable receiver gain.

The 1st IF signal from Q1 is applied to the 2nd mixer section of IC1 (pin 16), and is mixed with the 2nd LO signal to be converted to a 455 kHz 2nd IF signal.

IC1 contains the 2nd mixer, 2nd local oscillator, limiter amplifier, S-meter and quadrature detector circuits. The 2nd local oscillator section and X2 generate 21.245 MHz for the 2nd LO signal.

The 2nd IF signal (455 kHz) from the 2nd mixer (IC1 pin 3) passes through the ceramic filter (F1) where unwanted signals are suppressed. It is then amplified at the limiter amplifier section (IC1 pin 5) and applied to the quadrature detector section (IC1 pin 10 and ceramic discriminator X1) to demodulate the 2nd IF signal into AF signals.

See Figure 1.

AF signals output from IC1 (pin 9) are applied to the de-emphasis circuit (C104, R68). This de-emphasis circuit is an integrated circuit with frequency characteristics of -6 dB/octave. The resulting signals are applied to the AF active filter (MAIN unit Q12, Q11). The signals are also applied to the DTMF decoder (IC-2GXAT/ET) or optional tone squelch circuits (TSQL unit; IC-2GXA/E).

The S-meter output signal from IC1 (pin 12) is applied to the CPU (LOGIC unit; IC1 pin 9).

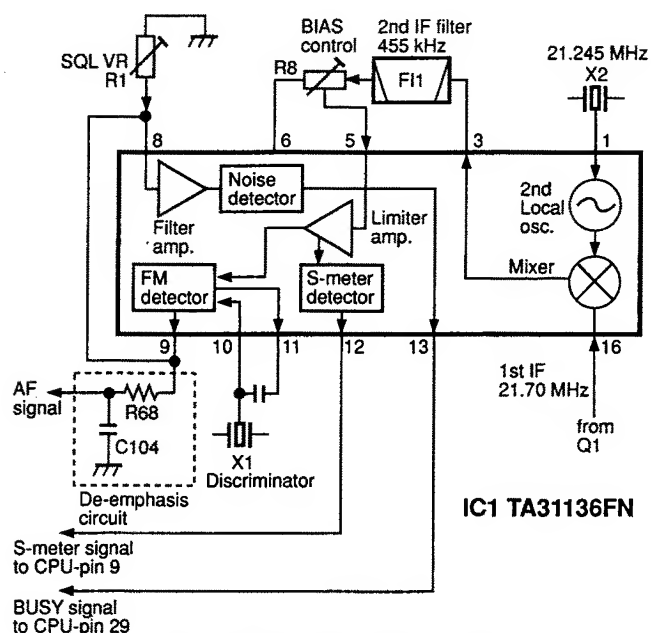


Fig. 1 2ND IF amplifier circuit

4-1-5 AF AMPLIFIER CIRCUIT (MAIN UNIT)

The AF amplifier circuit, including an AF mute switch, amplifies the demodulated signal to drive a speaker.

AF signals are applied to Q12 and Q11 on the MAIN unit. Q12 is an active filter that functions as a high-pass filter to suppress subaudible tone signals for tone squelch operation. Q11 is also an active filter that functions as a low-pass filter to suppress higher noise signals.

The filtered signals pass through the AF mute switch (Q10) and [VOL] control (VR board R1) and are then applied to the AF power amplifier (IC4 pin 4). AF signals are power-amplified at the AF power amplifier (IC4) to drive the speaker. AF signals output from IC4 (pin 10) pass through the external speaker jack (RF unit J2) and are applied to the speaker (LOGIC unit).

When the squelch is closed, Q10 cuts the AF signal as the AF mute switch.

The AF amplifier regulator (Q8, Q9) supplies sufficient voltage to drive the AF power amplifier. The AFON signal from the data expander (IC3) controls Q9 to reduce the current drain while the squelch is closed.

MAIN UNIT

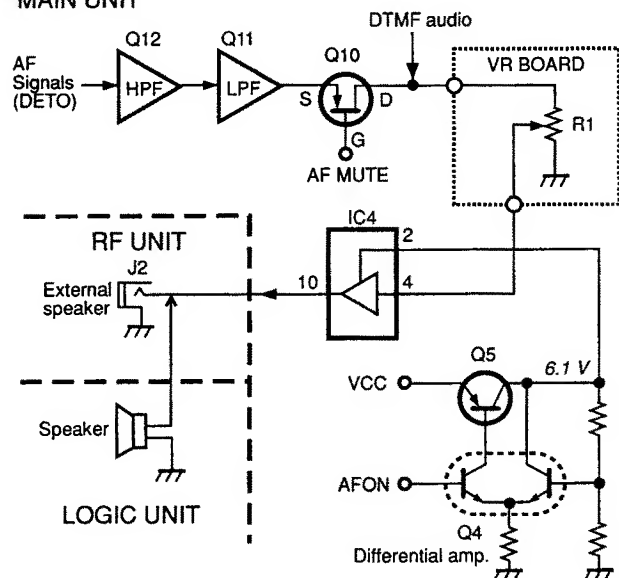


Fig. 2 AF SIGNAL LINE

4-1-6 SQUELCH CIRCUIT (RF UNIT)

A noise squelch circuit cuts out AF signals when no RF signal is received. By detecting noise components in the AF signal, the squelch circuit switches the AF mute switches.

Some of the noise components in the AF signal from FM IF IC (IC1 pin 9) are applied to IC1 pin 8 via C103. The SQL control (VR board R1) adjusts the pin 8 input level.

The active filter section in IC1 amplifies noise components of frequencies 20 kHz and above. Output signals are rectified and are converted to DC voltage in the noise detector section.

The signal is applied to the CPU (IC1 pin 29) on the LOGIC unit through the BUSY signal line and the CPU outputs an AF MUTE signal via the I/O expander (IC3) and a BUSY LED signal via pin 97.

4-2 TRANSMITTER CIRCUITS

4-2-1 MICROPHONE AMPLIFIER (MAIN UNIT)

The microphone amplifier circuit amplifies audio signals with +6 dB/octave pre-emphasis from the microphone to a level needed for the modulation circuit.

The AF signals from the built-in condenser microphone (LOGIC unit), or from the [MIC] jack on the RF unit, are applied to IC1 (pin 16), and are pre-emphasized to +6 dB/octave. IC1 functions as the microphone amplifier and the limiter.

The output signals from IC1 (pin 8) pass through the frequency deviation pot (R8) and are applied to the modulation circuit on the VCO board.

Q15 on the LOGIC unit is the PTT control circuit, and outputs "High" to the CPU when transmitting.

4-2-2 MODULATION CIRCUIT (VCO BOARD)

The modulation circuit modulates the VCO oscillating signal (RF signal) using the microphone audio signals.

The "MOD" signal changes the reactance of a diode (D2) to modulate the oscillated signal at the VCO circuit (Q1, Q2, D1). The oscillated signal is buffer-amplified at Q3, and Q12 on the RF unit. The amplified signal passes through the transmit/receive switching circuit (D10, D9) on the RF unit and is then applied to the drive amplifier circuit.

4-2-3 DRIVE AMPLIFIER CIRCUIT (RF UNIT)

The drive amplifier circuit amplifies the VCO oscillating signal to the needed level at the power amplifier.

The signal from the transmit/receive switching circuit (D10) is amplified at the pre-drive amplifier (Q13) and is then amplified again at a drive amplifier (Q14) to obtain approx. 20 mW of driving power.

4-2-4 RF POWER AMPLIFIER (RF UNIT)

IC1 is a power module which provides a stable 7 W (at DC 13.5 V) of output power.

The RF signal from the drive amplifier (Q14) is applied to the power amplifier (IC3, PI). The amplifier signal is output from IC3 (PO). The output signal is applied to the antenna connector through the APC detector circuit, the antenna switching circuit and the low-pass filter circuit.

4-2-5 APC CIRCUIT (RF UNIT AND APC BOARD)

The APC circuit protects the power module (IC3) from a mismatched output load and selects HIGH and LOW output power.

The output power from the power module (IC3, PO) is applied to the APC detector circuit (L14, D11, D12) to obtain a mismatched voltage. When the antenna impedance is matched at 50 Ω , the detected level is at its minimum.

However, when antenna impedance is mismatched, the detected voltage is higher than when it is matched.

The detected voltage is applied to a differential amplifier circuit (Q4b) on the APC board. The APC reference voltage is determined by the power output control circuit (MAIN unit Q16). The APC reference voltage is applied to the base of Q4a on the APC board.

When the antenna impedance is mismatched, the base voltage of Q4b exceeds the reference voltage. The collector voltage of Q4b decreases.

The current from the differential amplifier circuit (Q4a, Q4b) is amplified at Q5, then controls the bias voltage of the power module (IC3) until the base voltage of Q4b reaches the same level as the voltage of Q4a.

A thermistor (R3) controls the APC reference voltage and adjusts the output power to compensate for temperature fluctuations.

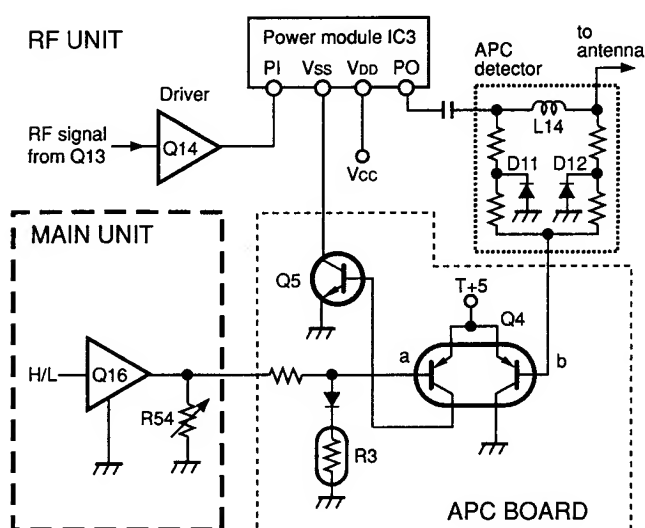


Fig. 3 APC CIRCUIT

4-2-6 POWER OUTPUT CONTROL CIRCUIT (MAIN UNIT)

The power output control circuit (Q16, R54) selects the output levels (HIGH, LOW) and controls the RF output power with the APC reference voltage.

The "HLOUT" signal from the I/O expander (IC3) is used as a power selection signal.

4-2-7 ANTENNA SWITCHING CIRCUIT (RF UNIT)

The antenna switching circuit applies received signals to the receiver circuit and the transmitter signals to the antenna connector.

When transmitting, D5 and D8 are turned ON. The RF output signal is not permitted to enter the receiver circuit. The signal passes through the low-pass filter (L8, L9, C37 – C41) and is then applied to the antenna connector. The low-pass filter suppresses high harmonic components.

4-3 PLL CIRCUITS

4-3-1 GENERAL

A PLL circuit provides stable oscillation of the transmit frequency and the receive local frequency. The PLL circuit compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by a crystal oscillator and the divided ratio (N-data) of a programmable divider.

4-3-2 PLL CIRCUIT (RF UNIT)

The PLL circuit, using a one chip PLL IC (IC2), directly generates the transmit frequency and receive 1st LO frequency with a VCO. The PLL IC sets the divided ratio based on serial data from the CPU on the LOGIC unit and compares the phases of a VCO signal and the reference oscillator frequency. The PLL IC detects the out-of-step phase and outputs it from pin 7.

4-3-3 REFERENCE OSCILLATOR CIRCUIT (RF UNIT)

A 15.4 MHz stable frequency is oscillated at X3 and Q17. The frequency is adjusted with C112. The frequency is divided by 3080 to obtain the PLL reference frequency (5 kHz).

4-3-4 PROGRAMMABLE DIVIDER AND PHASE DETECTOR CIRCUITS (RF UNIT)

The VCO generated signal (PLL LO signal) is amplified at Q9, and is applied to a PLL IC (IC2 pin 5). The PLL LO signal is divided at the programmable divider section and is then applied to the phase detector section.

The phase detector compares the input signal and a reference frequency and outputs the out-of-phase signal (pulse-type signal) from pin 7.

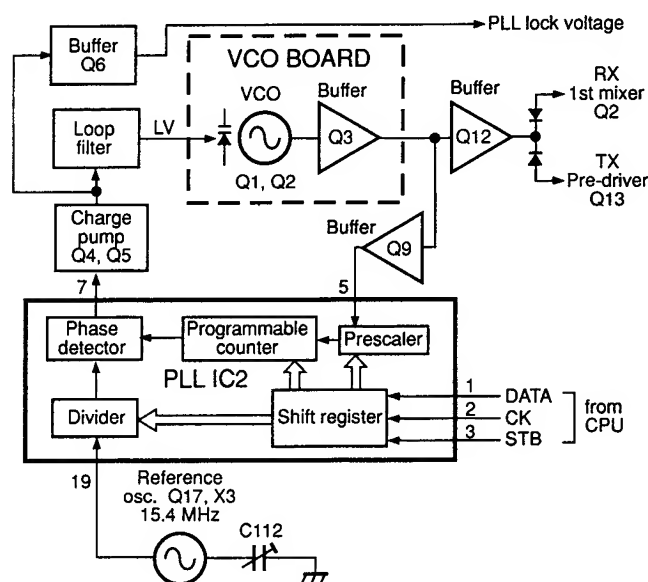


Fig. 4 PLL CIRCUIT

4-3-5 CHARGE PUMP AND LOOP FILTER CIRCUITS (RF UNIT)

The phase detected signal is applied to the active loop filter (Q4, Q5, C54 – C56) and the lag-lead loop filter (R34, C53). These loop filters convert the pulse signal to DC voltage while increasing the DC voltage range.

4-3-6 VCO CIRCUIT (VCO BOARD)

The VCO circuit (Q1, Q2, D2, L2) generates the transmit frequency and the receive 1st LO frequency. The varactor diode (D2) provides frequency control. While transmitting, the SHIFT signal (SHIFT) from R5S becomes "HIGH" to turn D1 OFF and while receiving, the SHIFT signal (SHIFT) from R5S becomes "LOW" to turn D1 ON. The output signal from the collector of Q1 is buffer-amplified at Q3 and is then applied to the PLL IC (IC2 pin 5) through Q9. On the other hand, the output signal from the collector of Q3 is buffer-amplified at Q12 on the RF unit. These buffer amplifiers amplify VCO oscillation and do not permit subsequent circuits to affect the VCO oscillation. The amplified signal is applied to the transmit/receive switching circuit (D9/D10).

4-4 VOLTAGE LINES

LINE	DESCRIPTION
HV	This voltage is supplied from a battery pack or external DC power supply (DCJ board).
VCC	This voltage passes through the power switch with [VOL] control (R1) on the VR board and is then applied to the 5V regulator circuit (Q5: MAIN unit). This VCC is used for the transmitter circuit.
+5	Common 5V converted from the VCC line by the 5V regulator circuit (Q4, Q5) using the reference regulator (IC2) on the MAIN unit.
R5S	Receive 5V controlled at Q7 using the "R5SC" signal from IC3 on the MAIN unit. This voltage is used for power saver control in the receiver circuit.
T+5	5V for transmitter circuit controlled by the "T5C" signal from the CPU (LOGIC unit). The "T+5" regulator circuit located on the APC board and consists of Q1, Q2 and D1.

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4-5 OTHER CIRCUITS

4-5-1 SUBAUDIBLE TONE ENCODER CIRCUIT (IC-2GXA, MAIN-A UNIT)

The IC-2GXA (U.S.A.) has a subaudible tone encoder circuit to access a repeater requiring a subaudible tone.

IC6 encodes the subaudible tone frequency signals of 67.0 Hz to 250.3 Hz. The serial data from CPU (IC1) on the LOGIC unit passes through J4 on the MAIN unit and is then applied to a serial/parallel converter (IC6) to set the tone signals. IC6 supplies the 6-bit parallel data to pins 8 – 13 of IC5.

The 6-bit parallel data from IC6 passes through the programmable counter section of IC5. A 3.5795 ± 0.5 MHz reference frequency from X1 is applied to a programmable counter section of IC5. The divided signal is output from IC5 (pin 1) and is then applied to R66 for tone deviation adjustment. The signal is applied to IC1 (pin 2) on the MAIN unit and modulates the microphone signal.

4-5-2 TONE SQUELCH CIRCUIT (IC-2GXAT/ET, MAIN-B UNIT)

The IC-2GXAT/ET has a tone squelch circuit on the MAIN-B unit. The tone squelch circuit provides pocket beep, tone squelch and programmable tone encoder functions. IC6 encodes and decodes the subaudible tone frequency signals of 67.0 Hz – 250.3 Hz.

ENCODER FUNCTION

The serial data from IC3 (pin 10) on the MAIN unit is applied to IC6 (pin 11) through the SDATA line. The tone signal reply to the serial data signal is output from IC6 (pin 21) and is applied to the microphone amplifier (IC1 pin 2) through R73, which adjusts the deviation level.

DECODER FUNCTION

The received signal from the DETO signal line is applied to the low-pass filter (C54, C61, R65, R66) and then to pin 1 of IC6. The filtered signal is compared with the programmed tone signal. Pin 14 of IC6 becomes "LOW" when the received signal includes the same tone as the programmed tone frequency. The CPU on the LOGIC unit detects agreement with the tone signal when pin 14 of IC6 becomes "LOW."

4-5-3 DTMF DECODER CIRCUIT (Optional for IC-2GXAT/ET)

The UT-49 DTMF DECODER unit provides pager and code squelch functions.

The "DETO" signal from the MAIN unit is applied to the DTMF decoder IC (IC1 pin 2) on the optional UT-49. The input signal passes through the filter circuit in IC1 and is then applied to the signal detector circuit in IC1. When the double tone signal is detected, pin 15 of IC1 becomes "HIGH." Therefore, the CPU (IC1 pin 22) on the LOGIC unit becomes "LOW" and then decodes the received DTMF code. The data expander IC3 on the MAIN unit outputs an enable signal to read out the 4-bit binary outputs (Q1 – Q4: terminal number) from the UT-49 DTMF DECODER unit.

The CPU (IC1 pins 70, 71) on the LOGIC unit outputs a DTMF code signal. The output signal is applied to R50 on the MAIN unit for DTMF deviation adjustment. The signal is applied to the [MIC] amp section in IC1 on the MAIN unit.

4-6 PORT ALLOCATIONS

4-6-1 CPU (LOGIC UNIT IC1)

PIN NUMBER	PORT NAME	DESCRIPTION
1	PLSTB	Outputs strobe signals for serial data to the PLL IC (IC2) on the RF unit.
2	IOSTB	Outputs strobe signals for serial data to the data expander IC (IC3) and the tone IC (IC6) on the MAIN unit.
3	DIAL UP	Input port for the up signal of the main dial on the SW board.
4	DIAL DOWN	Input port for the down signal of the main dial on the SW board.
5	ERCK	Outputs clock signals to the EEPROM (IC2) during data send/receive.
6	ERDATA	I/O port for serial data to the EEPROM (IC1) for memory read/write.
7	PTT	Input port for the [PTT] switch. "HIGH": transmit "LOW": receive
8	VC REF	Reference voltage input terminal.
9	SMETER	Input port for an s-meter detection signal.
10	KEY	Input port for [FUNC], [LAMP] and [MONI] switch with different voltages.
15 – 18, 21, 22	K00 – K05	Input ports for key return signal from the keyboard.
19	LAMPO	Output port for the LCD backlight.
20	T5C	Outputs a T5 control signal. When this port is "HIGH", T5 voltage is produced in the APC board.
23 – 28	K10 – K15	Output ports for the keyboard. K10 – K13 are also used for DTMF decoder data output.
29	BUSY/UNLK	Detects squelch and PLL unlock signals. This port becomes "LOW" when the squelch is closed or PLL is unlocked.
30	–	Detects a signal for the standby mode of the CPU. The CPU enters the standby mode when the port becomes "LOW."
31 – 65	–	Used to drive LCD output.
70, 71	–	Outputs a DTMF code signal.

PIN NUMBER	PORT NAME	DESCRIPTION
74, 75	–	Clock oscillator terminals for a CPU clock.
76	–	CPU starts operation when this port receives "LOW."
77	TONE/ BUSY LED	Outputs a 1750 Hz tone call signal. Outputs the receive LED signal.
79	CK	Outputs clock signals for serial data.
80	DATA	Outputs serial data synchronized with the CK signal.

4-6-2 DATA EXPANDER (MAIN UNIT IC3)

PIN NUMBER	PORT NAME	DESCRIPTION
1	STRB	Input port for a strobe signal from the CPU.
2	DATA	Input port for serial data from the CPU.
3	CLK	Input port for the clock signal from the CPU.
4	TOE	Outputs an enable signal for the DTMF decoder (IC-2GXAT/ET).
5	MMUTE	Outputs a microphone mute signal. "HIGH": mic mute.
6	AFON	Outputs the AF power amplifier control signal. "HIGH": AF amp activates. "LOW" : AF amp deactivates.
7	AFMUTE	Output port for the receive muting signal which mutes audio power.
10	SDATA	Outputs serial data for the tone encoder.
12	R5SC	Outputs a power save control signal when receiving.
13	+5SC	Outputs a power save control signal when transmitting.
14	HLOUT	Outputs the control signals for the output power selection circuit. These signals are converted into the APC reference voltage with R54 on the MAIN unit.

SECTION 5 ADJUSTMENT PROCEDURES

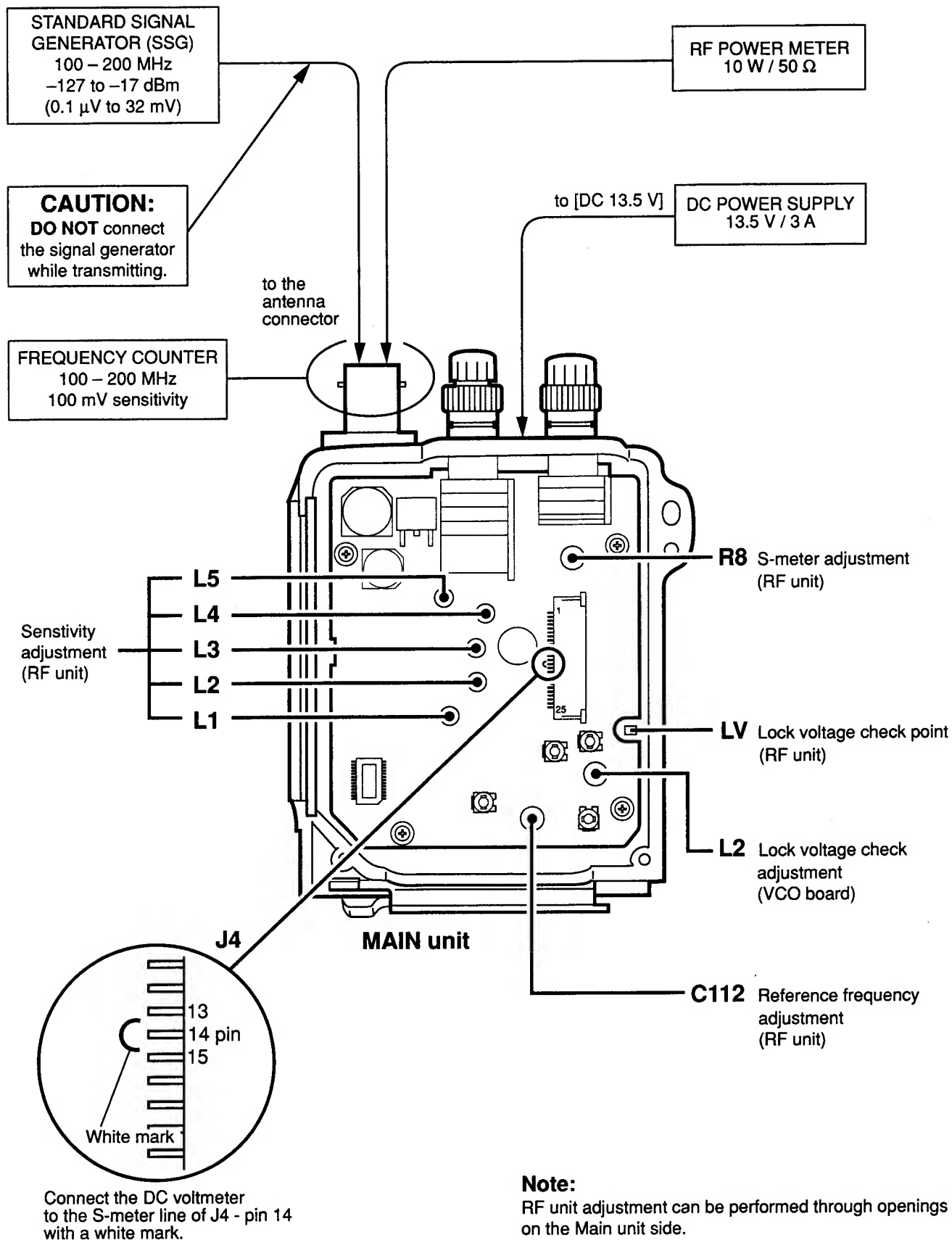
5-1 PLL ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
LOCK VOLTAGE	1	●Displayed frequency: 144.000 MHz ●Receiving	RF	Connect the digital voltmeter or oscilloscope to LV.	1.2 V ± 0.2 V after a foil is attached.	VCO	L2
	2	●Transmitting					Verify
	3	Repeat steps 1 and 2 several times when the lock voltage is changed.					
REFERENCE FREQUENCY	1	●Displayed frequency: 146.000 MHz ●Connect the RF power meter or a 50 Ω dummy load to the antenna connector. ●Transmitting	Top panel	Loosely couple the frequency counter to the antenna connector.	146.000 MHz	RF	C112

5-2 RECEIVER ADJUSTMENT

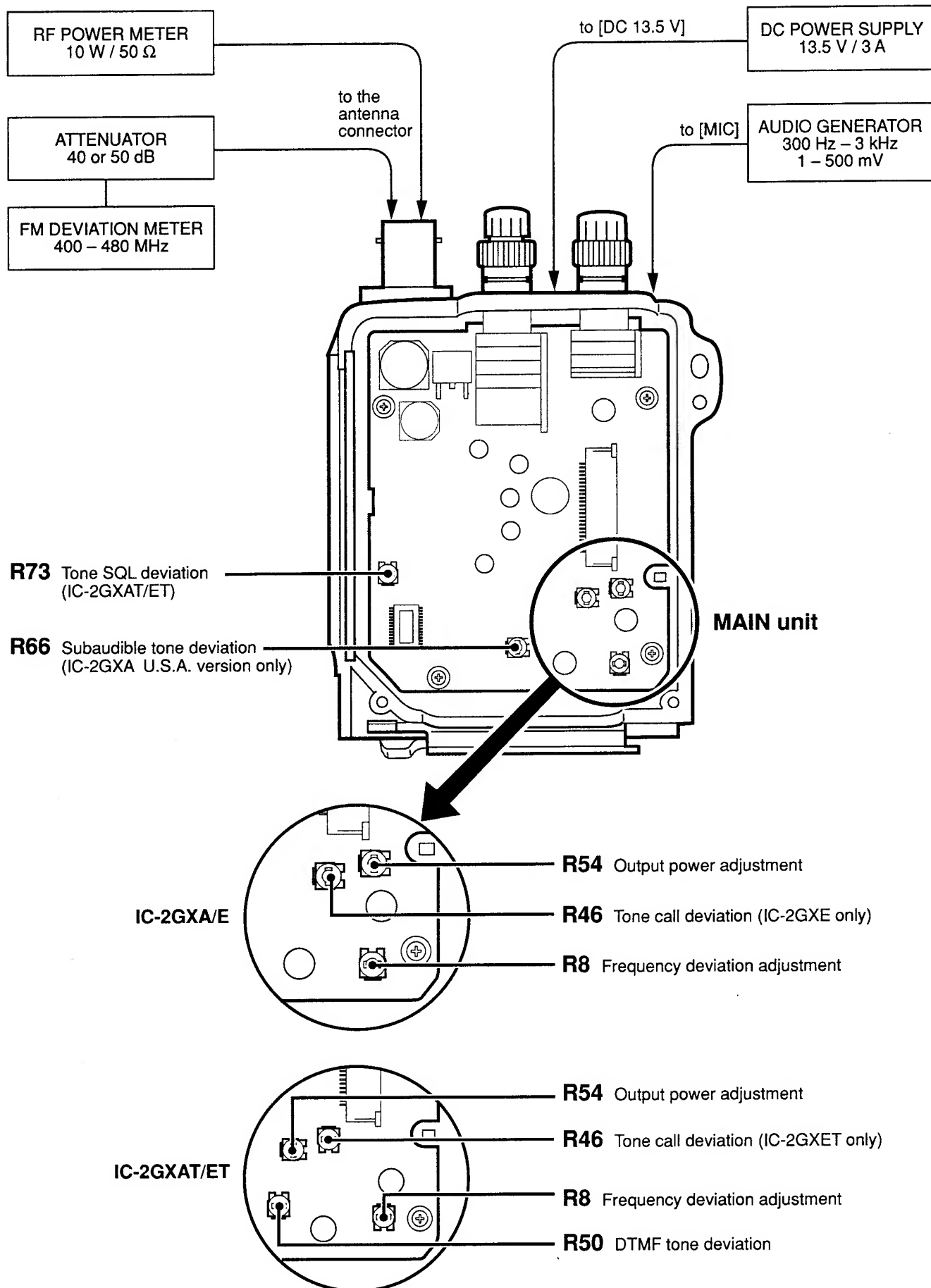
ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
SENSITIVITY	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz [SQL] control : Max. CCW Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 1.0 μV* (-107 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	MAIN	Connect the DC voltmeter to the S-meter line of J4.	Maximum DC voltage	RF	Adjust in sequence L5, L4, L3 L2, L1
S-METER	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 0.5 μV* (-113 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	Front panel	Logic unit LCD display	S3 (3 dots)	RF	R8

* This output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.



5-3 TRANSMITTER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
OUTPUT POWER	1	<ul style="list-style-type: none"> Displayed frequency: 144.000 MHz Output power : High Transmitting Be sure the power supply voltage is 13.5 V 	Top panel	Connect the RF power meter to the antenna connector.	7.0 W	MAIN	R54
	2	<ul style="list-style-type: none"> Output power : Low 			0.5 – 2 W S1 (1 dot)		Verify
FREQUENCY DEVIATION	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Output power : High power simplex Connect the audio generator to the [MIC] jack and set as: 140 mV/1.0 kHz (U.S.A. version) 70 mV/1.0 kHz (All other versions) Set the FM deviation meter as: HPF : 50 Hz LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±4.5 kHz	MAIN	R8
DTMF TONE DEVIATION (IC-2GXAT/ 2GXET)	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Push [D] key while transmitting. 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±3.5 kHz	MAIN	R50
TONE CALL DEVIATION (IC-2GXE/ 2GXET)	1	<ul style="list-style-type: none"> Displayed frequency : 145.000 MHz Push [DUP] switch while transmitting. 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±3.5 kHz	MAIN	R46
SUBAUDIBLE TONE DEVIATION (IC-2GXA U.S.A. version)	1	<ul style="list-style-type: none"> Displayed frequency : 145.000 MHz Apply no signal to the microphone connector. Set the tone frequency as: 88.5 Hz Set the FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 Apply no signal to the [MIC] connector Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±0.75 kHz	MAIN	R66
TONE SQL DEVIATION (IC-2GXAT/ 2GXET)	1	<ul style="list-style-type: none"> Displayed frequency : 145.000 MHz HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 Tone frequency : 88.5 Hz Apply no signal to the [MIC] connector Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±0.75 kHz	MAIN	R73



SECTION 5

PARTS LIST

[LOGIC-B UNIT] (IC-2GXA/E only)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1140002520	S.IC	HD4074618H
IC1	1140003940	S.IC	HD404618B10H
IC2	1140003610	S.IC	X24C04S8-2.7
IC3	1130007470	S.IC	MN1382N(TX)
Q1	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q2	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q5	1590001050	S.TRANSISTOR	DTC114TU T107
Q10	1590000660	S.TRANSISTOR	DTC144TU T107
Q13	1590000660	S.TRANSISTOR	DTC144TU T107
Q14	1590000660	S.TRANSISTOR	DTC144TU T107
Q15	1510000880	S.TRANSISTOR	2SA1622-6-TR
Q16	1590001050	S.TRANSISTOR	DTC114TU T107
D6	1790000590	S.DIODE	MA110(TW)
D8	1750000120	S.DIODE	DWA010-TE
D10	1790000590	S.DIODE	MA110(TW)
D11	1160000050	S.DIODE	DAP202U T107
D12	1750000220	S.DIODE	DA113W T107
D13	1750000220	S.DIODE	DA113W T107
D14	1790000590	S.DIODE	MA110(TW)
D15	1790001200	S.DIODE	MA6S121(TX)
X1	6060000260	CERAMIC	CSB800J220
R1	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R2	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R4	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R5	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R6	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R7	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R10	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R11	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R23	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R24	7030005520	S.RESISTOR	RR0816R-334-D (330 kΩ)
R25	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R27	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R28	7030005500	S.RESISTOR	RR0816R-124-D (120 kΩ)
R35	7410000560	S.ARRAY	EXB-V4V 474JV (470 kΩ)
R36	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R38	7410000590	S.ARRAY	EXB-V4V 473JV (47 kΩ)
R39	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R40	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R41	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R42	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R43	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R44	7030005500	S.RESISTOR	RR0816R-124-D (120 kΩ)
R45	7030005470	S.RESISTOR	RR0816R-244-D (240 kΩ)
R46	7030005490	S.RESISTOR	RR0816R-363-D (36 kΩ)
R47	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R48	7030005390	S.RESISTOR	RR0816P-102-D (1 kΩ)
R52	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R53	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R54	7030005320	S.RESISTOR	RR0816P-103-D (10 kΩ)
R55	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R56	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
C2	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C3	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C10	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C11	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C12	4550006210	S.TANTALUM	ECST1CX106R
C13	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C14	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C15	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A

[LOGIC-B UNIT] (IC-2GXA/E only)

REF. NO.	ORDER NO.	DESCRIPTION	
C16	4550006210	S.TANTALUM	ECST1CX106R
C17	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C18	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C19	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C20	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C21	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C22	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C23	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C24	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C25	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C26	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C27	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C28	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C29	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C30	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C31	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C32	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C33	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C34	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C35	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C36	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C37	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C38	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C39	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C40	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
SP1	2510000680	SPEAKER	SU-36W08011G
W1	7030003860	S.JUMPER	ERJ3GE JPW V
W2	7030003860	S.JUMPER	ERJ3GE JPW V
W3	7030003860	S.JUMPER	ERJ3GE JPW V
S1	2230000900	S.SWITCH	JPM1990-2013R
EP1	0910040753	PCB	B 4091C
EP2	0910040680	FPC	B 3950
EP3	8930030500	LCD CONTACT	SRCN-1452 SG
DS1	5030001020	LCD	LM-1248B
DS2	5010000070	S.LED	LT1E73A
DS3	5010000070	S.LED	LT1E73A
DS4	5040001110	S.LED	SLM-23VMWS T97B

S.=Surface mount

[MAIN-A UNIT] (IC-2GXA/E only)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110003410	S.IC	μPC5023GR-043-GJG-T2
IC2	1180000530	S.IC	S-81250HG-RD-T1
IC3	1130005810	S.IC	BU4094BF-T1
IC4	1110001810	S.IC	TA7368F(TP1)
IC5	1130000950	IC	S-7116A (USA)
IC6	1130005810	S.IC	BU4094BF-T1 (USA)
Q1	1590001150	S.TRANSISTOR	UN9211(TX)
Q2	1590000720	S.TRANSISTOR	DTA144EU T107
Q3	1590000660	S.TRANSISTOR	DTC144TU T107
Q4	1590001170	S.TRANSISTOR	XP1501-(TX).AB
Q5	1520000450	S.TRANSISTOR	2SB1132 T100 Q
Q7	1590001060	S.TRANSISTOR	DTA114TU T107
Q8	1520000650	S.TRANSISTOR	2SB1201-S-TR
Q9	1590001170	S.TRANSISTOR	XP1501-(TX).AB
Q10	1590001390	S.FET	2SJ144-Y (TE85R)
Q11	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q12	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q14	1590000660	S.TRANSISTOR	DTC144TU T107
Q15	1590000430	S.TRANSISTOR	DTC144EU T107 (except USA)
Q16	1590000430	S.TRANSISTOR	DTC144EU T107
D1	1750000340	S.DIODE	1SS357 (TPHR3)
X1	6050003120	XTAL	RF-4A3 FAA NKD (3.579545M) (USA)
R5	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R6	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R7	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R8	7310003550	S.TRIMMER	MVR32HXBR N473
R9	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R10	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ) (except USA)
R10	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ) (USA)
R11	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R13	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R14	7030004020	S.RESISTOR	ERJ3GEYJ 243 V (24 kΩ)
R15	7030003390	S.RESISTOR	ERJ3GEYJ 391 V (390 Ω)
R20	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R21	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R23	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R24	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R25	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R26	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R27	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R28	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R29	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R32	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R34	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R35	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R36	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R37	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R38	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R39	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R40	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R41	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R42	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R46	7310003550	S.TRIMMER	MVR32HXBR N473 (except USA)
R47	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ) (except USA)
R48	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ) (except USA)
R49	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R51	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R52	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R54	7310003550	S.TRIMMER	MVR32HXBR N473
R55	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R56	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R57	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)

[MAIN-A UNIT] (IC-2GXA/E only)

REF. NO.	ORDER NO.	DESCRIPTION	
R58	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R59	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R60	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R61	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R63	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ) (except USA)
R65	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ) (USA)
R66	7310003550	S.TRIMMER	MVR32HXBR N473 (USA)
C2	4550006150	S.TANTALUM	ECST1CY105R
C3	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C5	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C6	4030008770	S.CERAMIC	C1608 JB 1H 562K-T-A
C7	4550006140	S.TANTALUM	ECST1EY474R
C8	4030007150	S.CERAMIC	C1608 CH 1H 151J-T-A
C9	4030008930	S.CERAMIC	C2012 JB 1C 563K-T-A (except USA)
C9	4030005100	S.CERAMIC	C2012 JB 1H 273K-T-A (USA)
C10	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C11	4030008940	S.CERAMIC	C2012 JB 1C 683K-T-A
C12	4550003030	S.TANTALUM	TEMSVA 0J 475M-8L
C13	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C15	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C16	4510001860	ELECTROLITIC	16 M55 33UF
C17	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C18	4550006150	S.TANTALUM	ECST1CY105R
C19	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4550006150	S.TANTALUM	ECST1CY105R
C21	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C22	4510005370	S.ELECTROLITIC	ECEV1AA221P
C24	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C25	4550006200	S.TANTALUM	ECST0JY106R
C26	4550006340	S.TANTALUM	ECST1AY335R
C27	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C28	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C29	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C30	4510005320	S.ELECTROLITIC	ECEV0JA101SP
C32	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C33	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C34	4030006860	S.CERAMIC	C1608 JB 1C 104Z-T-A
C35	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C36	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C37	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C38	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C41	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C43	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C44	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C45	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C46	4550006320	S.TANTALUM	ECST0JY475R
C47	4550006200	S.TANTALUM	ECST0JY106R
C48	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C50	4550006140	S.TANTALUM	ECST1EY474R (USA)
C51	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A (USA)
C52	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A (USA)
C53	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A (USA)
C70	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A (except USA)
C71	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
W1	7030003860	S.JUMPER	ERJ3GE JPW V
W2	7030003860	S.JUMPER	ERJ3GE JPW V (USA)
W5	7030003860	S.JUMPER	ERJ3GE JPW V
J1	6510016430	S.CONNECTOR	53307-1491 (except USA)
J2	6510016420	S.CONNECTOR	4-175638-2
J3	6510016420	S.CONNECTOR	4-175638-2
J4	6510014490	S.CONNECTOR	52204-2590
EP1	0910041002	PCB	B 4117B

S.=Surface mount

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110003490	S.IC	TA31136FN(D,EL)
IC2	1110003420	S.IC	M64073GP-700C
IC3	1150001400	IC	SC1265
Q1	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)
Q2	1560000800	S.FET	2SK360IGD-TR
Q3	1560000800	S.FET	2SK360IGD-TR
Q4	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q5	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q6	1560000540	S.FET	2SK880-Y (TE85R)
Q8	1590000430	S.TRANSISTOR	DTC144EU T107
Q9	1530002560	S.TRANSISTOR	2SC4403-3-TR
Q11	1540000410	S.TRANSISTOR	2SD2345(TX)S
Q12	1530002560	S.TRANSISTOR	2SC4403-3-TR
Q13	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q14	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q16	1590001060	S.TRANSISTOR	DTA114TU T107
Q17	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
D1	1720000370	S.VARICAP	HVU350TRF
D2	1720000370	S.VARICAP	HVU350TRF
D3	1720000370	S.VARICAP	HVU350TRF
D4	1720000370	S.VARICAP	HVU350TRF
D5	1790000450	S.DIODE	MA862(TX)
D8	1790000620	S.DIODE	MA77(TW)
D9	1790000620	S.DIODE	MA77(TW)
D10	1790000620	S.DIODE	MA77(TW)
D11	1720000360	S.DIODE	HSU88TRF
D12	1720000360	S.DIODE	HSU88TRF
D14	1720000360	S.DIODE	HSU88TRF
D15	1790001030	S.DIODE	SB30-03P-TD
D16	1790001030	S.DIODE	SB30-03P-TD
D17	1750000340	S.DIODE	1SS357 (TPHR3)
D18	1790000590	S.DIODE	MA110(TW)
FJ1	2020000980	CERAMIC	KBF-455PS-15A2C
FI2	2010001630	MONOLITH	21M15BE 21.700000M (FL-206)
X1	6070000130	DISCRI	CDBM455C24
X2	6050008790	XTAL	CR-468 UM-1 (21.245000MHZ)
X3	6050008890	XTAL	CR-474 UM-1 (15.400000MHZ)
L1	6150003210	COIL	LS-319
L2	6150003120	COIL	LS-321
L3	6150003120	COIL	LS-321
L4	6150003120	COIL	LS-321
L5	6150003120	COIL	LS-321
L6	6200002820	S.COIL	LQN 1A 47NJ04
L7	6110002070	COIL	LA-227
L8	6110002000	COIL	LA-226
L9	6110002070	COIL	LA-227
L10	6200001080	S.COIL	MLF2012D 47NM-T
L11	6200001500	S.COIL	MLF2012D R12K-T
L12	6200003290	S.COIL	ELJNC R12K-F
L13	6200001630	S.COIL	ELJNC R10K-F
L14	6200001770	S.COIL	ELJNC 47NK-F
L15	6200001520	S.COIL	MLF2012D R82K-T
L16	6200001260	S.COIL	MLF2012A 1R8M-T
R1	7030003450	S.RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R2	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R3	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R4	7030003490	S.RESISTOR	ERJ3GEYJ 272 V (2.7 kΩ)
R5	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R7	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R8	7310003830	S.TRIMMER	MVR32HXB R N222 (2.2K)
R9	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R11	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R13	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R14	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R15	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R16	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R17	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R18	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R19	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R21	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R22	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R23	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R24	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R26	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R27	7030003790	S.RESISTOR	ERJ3GEYJ 824 V (820 kΩ)
R28	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R30	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R31	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R32	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R33	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R34	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R35	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R36	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R37	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R42	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R43	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R44	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R45	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R46	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R47	7030003660	S.RESISTOR	ERJ3GEYJ 683 V (68 kΩ)
R48	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R49	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R50	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R51	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R52	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R53	7030003260	S.RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R54	7030003490	S.RESISTOR	ERJ3GEYJ 272 V (2.7 kΩ)
R55	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R56	7030003250	S.RESISTOR	ERJ3GEYJ 270 V (27 Ω)
R57	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R58	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R59	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R60	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R61	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R63	7030000260	S.RESISTOR	MCR10EZJH 100 Ω (101)
R64	7030000340	S.RESISTOR	MCR10EZJH 470 Ω (471)
R67	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R68	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R69	7030003230	S.RESISTOR	ERJ3GEYJ 180 V (18 Ω)
R70	7030003370	S.RESISTOR	ERJ3GEYJ 271 V (270 Ω)
R71	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R72	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R73	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R74	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
C1	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C2	4550006200	S.TANTALUM	ECST0JY106R
C3	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C7	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C8	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C9	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C10	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C11	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C12	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C13	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C16	4030009920	S.CERAMIC	C1608 CH 1H 050B-T-A
C17	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C18	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C19	4030006670	S.CERAMIC	C1608 SL 1H 270J-T-A
C21	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C22	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A

S.=Surface mount

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C24	4030009560	S.CERAMIC	C1608 CH 1H R75B-T-A
C25	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C26	4030006930	S.CERAMIC	C1608 CH 1H 020C-T-A
C27	4030009560	S.CERAMIC	C1608 CH 1H R75B-T-A
C28	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C29	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C30	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C31	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C32	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C33	4030006660	S.CERAMIC	C1608 SL 1H 220J-T-A
C34	4030007050	S.CERAMIC	C1608 CH 1H 220J-T-A
C35	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C36	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C37	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
C38	4030006580	S.CERAMIC	C1608 SL 1H 070D-T-A
C39	4030007060	S.CERAMIC	C1608 CH 1H 270J-T-A
C40	4030009550	S.CERAMIC	C1608 CH 1H 2R5B-T-A
C41	4030006630	S.CERAMIC	C1608 SL 1H 150J-T-A
C44	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C45	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C46	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C50	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C52	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C53	4550006360	S.TANTALUM	ECST1VY104R
C54	4550006190	S.TANTALUM	ECST0GY106R
C55	4550006190	S.TANTALUM	ECST0GY106R
C56	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C58	4030006630	S.CERAMIC	C1608 SL 1H 150J-T-A
C59	4030006630	S.CERAMIC	C1608 SL 1H 150J-T-A
C60	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C61	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C62	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
C63	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C64	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C65	4550006200	S.TANTALUM	ECST0JY106R
C66	4030006560	S.CERAMIC	C1608 SL 1H 050C-T-A
C67	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C68	4030006620	S.CERAMIC	C1608 SL 1H 120J-T-A
C69	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C70	4030006930	S.CERAMIC	C1608 CH 1H 020C-T-A
C71	4030006620	S.CERAMIC	C1608 SL 1H 120J-T-A
C72	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C73	4550006150	S.TANTALUM	ECST1CY105R
C74	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C75	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C76	4030006640	S.CERAMIC	C1608 SL 1H 180J-T-A
C77	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C78	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C79	4510005600	S.ELECTROLITIC	ECEV1CS100SR
C80	4510005600	S.ELECTROLITIC	ECEV1CS100SR
C81	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C82	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A
C83	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C84	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A
C85	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C87	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C88	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C89	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C90	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C91	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C92	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C93	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C95	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C96	4550006130	S.TANTALUM	ECST1VY224R
C97	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C98	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C99	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C100	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C101	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C102	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C103	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C104	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C105	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C106	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C107	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C108	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C109	4030007120	S.CERAMIC	C1608 CH 1H 820J-T-A
C110	4030007120	S.CERAMIC	C1608 CH 1H 820J-T-A
C111	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C112	4610001890	S.TRIMMER	CTZ3E-20C-W1
C113	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C114	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C115	4550006320	S.TANTALUM	ECST0JY475R
C116	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C117	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C118	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C119	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C120	4030006940	S.CERAMIC	C1608 CH 1H 030C-T-A
C121	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C122	4550006320	S.TANTALUM	ECST0JY475R
C123	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C124	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
W1	7120000380	JUMPER	JPW 01 R-01
J1	6450000130	CONNECTOR	HSJ1102-01-540
J2	6450001060	CONNECTOR	HSJ1493-01-010
J3	6510018410	S.CONNECTOR	4-176756-2
J4	6510018410	S.CONNECTOR	4-176756-2
EP1	0910040644	PCB	B 3945D

[DC-J BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
J1	6450001080	CONNECTOR	HEC3800-01-010
EP1	0910040730	PCB	B 4089

[APC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q2	1520000450	S.TRANSISTOR	2SB1132 T100 Q
Q3	1590000430	S.TRANSISTOR	DTC144EU T107
Q4	1590000620	S.TRANSISTOR	FMS1 T148
Q5	1540000410	S.TRANSISTOR	2SD2345(TX)S
D1	1790000590	S.DIODE	MA110(TW)
D2	1160000060	S.DIODE	DAN202U T107
R1	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R3	7510000200	S.THERMISTOR	TN20-3U473LT
R4	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)
R8	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R9	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R10	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R12	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R13	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C2	4550006130	S.TANTALUM	ECST1VY224R
C3	4030006860	S.CERAMIC	C1608 JF 1C 104Z-T-A
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C7	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A

S≡Surface mount

[APC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C9	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040653	PCB	B 3947C

[VCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q2	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q3	1530002560	S.TRANSISTOR	2SC4403-3-TR
D1	1790000620	S.DIODE	MA77(TW)
D2	1720000370	S.VARICAP	HVU350TRF
L1	6200001520	S.COIL	MLF2012D R82K-T
L2	6130002760	S.COIL	LB-312
L3	6200001630	S.COIL	ELJNC R10K-F
R1	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 k Ω)
R2	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R3	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R4	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 k Ω)
R5	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 k Ω)
R6	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R7	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 k Ω)
R8	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)
R9	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R10	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 k Ω)
R11	7030003370	S.RESISTOR	ERJ3GEYJ 271 V (270 Ω)
R12	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R13	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R14	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R15	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 k Ω)
C1	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A
C2	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C3	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C7	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C8	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C9	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C11	4030009500	S.CERAMIC	C1608 CH 1H 0R5B-T-A
C12	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C13	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
J1	6910008020	CONNECTOR	IPS-1323
EP1	0910040742	PCB	B 4090B

[CONNECT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1520000450	S.TRANSISTOR	2SB1132 T100 Q
Q2	1530003180	S.TRANSISTOR	2SC4211-7-TR
D1	1730002160	S.ZENER	02CZ5.1-Z (TE85R)
D2	1790000670	S.DIODE	SB07-03C-TA
D3	1790000590	S.DIODE	MA110(TW)
D4	1790000590	S.DIODE	MA110(TW)
R1	7030003250	S.RESISTOR	ERJ3GEYJ 270 V (27 Ω)
R2	7030003250	S.RESISTOR	ERJ3GEYJ 270 V (27 Ω)
R3	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R4	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 k Ω)
R5	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 k Ω)
R6	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 k Ω)
R7	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 k Ω)
R8	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 k Ω)
R9	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R10	7030000080	S.RESISTOR	MCR10EZJH 3.3 Ω (3R3)
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C2	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C3	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
W1	7030003860	S.JUMPER	ERJ3GE JPW V
EP1	0910040673	PCB	B 3949C

[VR BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R1	7210002390	VARIABLE	TP96D00N15F-10KB10KA (1452) [VOL/SQL]
EP1	0910040692	PCB	B 4070B

[SW BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C1	4030010070	S.CERAMIC	C1608 X7S 1S 104K-T-A
C1	4030010070	S.CERAMIC	C1608 X7S 1S 104K-T-A
S1	2260001400	ENCODER	SW-122 (RK097103H) [DIAL]
EP1	0910040702	PCB	B 4071B

[PTT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R1	7030005460	S.RESISTOR	RR0816R-204-D (200 k Ω)
R2	7030005500	S.RESISTOR	RR0816R-124-D (120 k Ω)
S1	2260001680	S.SWITCH	SKQDPB [PTT]
S2	2260001990	S.SWITCH	SOP-112HST [MONI]
S3	2260001990	S.SWITCH	SOP-112HST [FUNC]
S4	2260001990	S.SWITCH	SOP-112HST [LIGHT]
EP1	0910040712	PCB	B 4072B

S.=Surface mount

[LOGIC-A UNIT] (IC-2GXAT/ET only)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1140003940	S.IC	HD404618B10H
IC2	1140003610	S.IC	X24C04S8-2.7
IC3	1130007470	S.IC	MN1382N(TX)
Q1	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q2	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q5	1590001050	S.TRANSISTOR	DTC114TU T107
Q10	1590000660	S.TRANSISTOR	DTC144TU T107
Q11	1590000660	S.TRANSISTOR	DTC144TU T107
Q12	1590000660	S.TRANSISTOR	DTC144TU T107
Q13	1590000660	S.TRANSISTOR	DTC144TU T107
Q14	1590000660	S.TRANSISTOR	DTC144TU T107
Q15	1510000880	S.TRANSISTOR	2SA1822-6-TR
Q16	1590001050	S.TRANSISTOR	DTC114TU T107
D6	1790000590	S.DIODE	MA110(TW)
D8	1750000120	S.DIODE	DWA010-TE
D9	1790001200	S.DIODE	MA6S121(TX)
D10	1750000120	S.DIODE	DWA010-TE
D11	1160000050	S.DIODE	DAP202U T107 (DEN)
D11	1750000220	S.DIODE	DA113W T107 (UK, AUS, THA)
D11	1750000240	S.DIODE	DA112 T107 (USA, EUR)
D12	1750000240	S.DIODE	DA112 T107
D13	1750000220	S.DIODE	DA113W T107 (AUS, DEN)
D14	1790000590	S.DIODE	MA110(TW) (SEA, EUR, UK, USA, AUS, DEN)
D15	1790001200	S.DIODE	MA6S121(TX)
X1	6060000260	CERAMIC	CSB800J220
R1	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R2	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R4	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R5	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R6	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R7	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R10	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R11	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R23	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R24	7030005520	S.RESISTOR	RR0816R-334-D (330 kΩ)
R25	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R27	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R28	7030005500	S.RESISTOR	RR0816R-124-D (120 kΩ)
R35	7410000560	S.ARRAY	EXB-V4V 474JV (470 kΩ)
R36	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R37	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R38	7410000590	S.ARRAY	EXB-V4V 473JV (47 kΩ)
R39	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R40	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R41	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R42	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R43	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R44	7030005500	S.RESISTOR	RR0816R-124-D (120 kΩ)
R45	7030005470	S.RESISTOR	RR0816R-244-D (240 kΩ)
R46	7030005490	S.RESISTOR	RR0816R-363-D (36 kΩ)
R47	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R48	7030005390	S.RESISTOR	RR0816P-102-D (1 kΩ)
R52	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R53	7030005510	S.RESISTOR	RR0816P-303-D (30 kΩ)
R54	7030005320	S.RESISTOR	RR0816P-103-D (10 kΩ)
R55	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R56	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R57	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
C2	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C3	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C10	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A

[LOGIC-A UNIT] (IC-2GXAT/ET only)

REF. NO.	ORDER NO.	DESCRIPTION	
C11	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C12	4550006210	S.TANTALUM	ECST1CX106R
C13	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C14	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C15	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C16	4550006210	S.TANTALUM	ECST1CX106R
C17	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C18	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C19	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C20	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C21	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C22	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C23	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C24	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C25	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C26	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C27	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C28	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C29	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C30	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C31	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C32	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C33	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C34	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C35	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C36	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C37	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C39	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
SP1	2510000680	SPEAKER	SU-36W08011G
W1	7030003860	S.JUMPER	ERJ3GE JPW V
W2	7030003860	S.JUMPER	ERJ3GE JPW V
W3	7030003860	S.JUMPER	ERJ3GE JPW V
W6	7030003860	S.JUMPER	ERJ3GE JPW V
J1	6510013610	S.CONNECTOR	10FM-1.0BP
S1	2230000900	S.SWITCH	JPM1990-2013R
EP1	0910040664	PCB	B 3948C
EP2	0910040680	FPC	B 3950
EP3	8930030500	LCD CONTACT	SRCN-1452 SG
DS1	5030001020	LCD	LM-1248B
DS2	5010000070	S.LED	LT1E73A (GL1EG73)
DS3	5010000070	S.LED	LT1E73A (GL1EG73)
DS4	5040001110	S.LED	SLM-23VMWS T97B

[MAIN-B UNIT] (IC-2GXAT/ET only)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110003410	S.IC	μPC5023GR-043-GJG-T2
IC2	1180000530	S.IC	S-81250HG-RD-T1
IC3	1130005810	S.IC	BU4094BF-T1
IC4	1110001810	S.IC	TA7368F(TP1)
IC6	1130007220	S.IC	AK2341-T
Q1	1590001150	S.TRANSISTOR	UN9211(TX)
Q2	1590000720	S.TRANSISTOR	DTA144EU T107
Q3	1590000660	S.TRANSISTOR	DTC144TU T107
Q4	1590001170	S.TRANSISTOR	XP1501-(TX).AB
Q5	1520000450	S.TRANSISTOR	2SB1132 T100 Q
Q7	1590001080	S.TRANSISTOR	DTA114TU T107
Q8	1520000650	S.TRANSISTOR	2SB1201-S-TR
Q9	1590001170	S.TRANSISTOR	XP1501-(TX).AB

S.=Surface mount

[MAIN-B UNIT] (IC-2GXAT/ET only)

REF. NO.	ORDER NO.	DESCRIPTION	
Q10	1590001390	S.FET	2SJ144-Y (TE85R)
Q11	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q12	1530003180	S.TRANSISTOR	2SC4211-7-TR
Q14	1590000660	S.TRANSISTOR	DTC144TU T107
Q15	1590000430	S.TRANSISTOR	DTC144EU T107
Q16	1590000430	S.TRANSISTOR	DTC144EU T107
D1	1750000340	S.DIODE	1SS357 (TPHR3)
X1	6050008720	XTAL	CR-446 AT-38 3.8864MHz
R5	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R6	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R7	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R8	7310003550	S.TRIMMER	MVR32HXBR N473
R9	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R10	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R11	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R13	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R14	7030004020	S.RESISTOR	ERJ3GEYJ 243 V (24 kΩ)
R15	7030003390	S.RESISTOR	ERJ3GEYJ 391 V (390 Ω)
R16	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R20	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R21	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R23	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R24	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R25	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R26	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R27	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R28	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R29	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R32	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R34	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R35	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R36	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R37	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R38	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R39	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R40	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R41	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R42	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R46	7310003550	S.TRIMMER	MVR32HXBR N473
R47	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R48	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R49	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R50	7310003550	S.TRIMMER	MVR32HXBR N473
R51	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R52	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R54	7310003550	S.TRIMMER	MVR32HXBR N473
R55	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R56	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R57	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R58	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R59	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R60	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R61	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R63	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R65	7030003730	S.RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R66	7030003770	S.RESISTOR	ERJ3GEYJ 564 V (560 kΩ)
R67	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R68	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R69	7030003730	S.RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R70	7030003530	S.RESISTOR	ERJ3GEYJ 562 V (5.6 kΩ)
R71	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R72	7030003510	S.RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R73	7310003550	S.TRIMMER	MVR32HXBR N473
R74	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R75	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R76	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R77	7030003770	S.RESISTOR	ERJ3GEYJ 564 V (560 kΩ)

[MAIN-B UNIT] (IC-2GXAT/ET only)

REF. NO.	ORDER NO.	DESCRIPTION	
C2	4550006150	S.TANTALUM	ECST1CY105R
C3	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C5	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C6	4030006870	S.CERAMIC	C1608 JB 1H 562K-T-A
C7	4550006140	S.TANTALUM	ECST1EY474R
C8	4030007150	S.CERAMIC	C1608 CH 1H 151J-T-A
C9	4030005100	S.CERAMIC	C2012 JB 1H 273K-T-A
C10	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C11	4030006840	S.CERAMIC	C2012 JB 1C 683K-T-A
C12	4550003030	S.TANTALUM	TEMSVA 0J 475M-8L
C13	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C15	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C16	4510001860	ELECTROLITIC	16 MS5 33UF
C17	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C18	4550006150	S.TANTALUM	ECST1CY105R
C19	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4550006150	S.TANTALUM	ECST1CY105R
C21	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C22	4510005370	S.ELECTROLITIC	ECEV1AA221P
C24	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C25	4550006200	S.TANTALUM	ECST0JY106R
C26	4550006340	S.TANTALUM	ECST1AY335R
C27	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C28	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C29	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C30	4510005320	S.ELECTROLITIC	ECEV0JA101SP
C32	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C33	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C34	4030006830	S.CERAMIC	C1608 JF 1C 104Z-T-A
C35	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C36	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C37	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C38	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C41	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C43	4030006820	S.CERAMIC	C1608 JB 1C 473K-T-A
C44	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C45	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C46	4550006320	S.TANTALUM	ECST0JY475R
C47	4550006200	S.TANTALUM	ECST0JY106R
C48	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C50	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C51	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C52	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C53	4550006200	S.TANTALUM	ECST0JY106R
C54	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C55	4030006750	S.CERAMIC	C1608 SL 1H 101J-T-A
C56	4550006320	S.TANTALUM	ECST0JY475R
C57	4550006150	S.TANTALUM	ECST1CY105R
C58	4550006150	S.TANTALUM	ECST1CY105R
C59	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C61	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C64	4550006150	S.TANTALUM	ECST1CY105R
C70	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
C71	4030010070	S.CERAMIC	C1608 X7S 1C 104K-T-A
W1	7030003860	S.JUMPER	ERJ3GE JPW V
W2	7030003860	S.JUMPER	ERJ3GE JPW V
W3	7030003860	S.JUMPER	ERJ3GE JPW V
J2	6510016420	S.CONNECTOR	4-175638-2
J3	6510016420	S.CONNECTOR	4-175638-2
J4	6510014490	S.CONNECTOR	52204-2590
EP1	0910041013	PCB	B 4118C

S.=Surface mount

SECTION 7 MECHANICAL PARTS LIST

7-1 CHASSIS PARTS

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
①	8210010200	1452K Front panel (IC-2GXAT/ET)	1
	8210010180	1452S Front panel (IC-2GXAE)	
②	8810005090	Screw PH M2 x 3 ZK	3
③	8930029841	1452 SW rubber-1	1
④	8810006980	Screw No. 0-1 M2 x 3.5 NI	1
⑤	8930029850	1452 LED lens	1
⑥	8930030030	1452 Center seal	1
⑦	8930029800	1452 Keyboard (IC-2GXAT/ET)	1
	8930029860	1452 3-Key rubber (IC-2GXAE)	
⑧	8930029810	1452 SP base (IC-2GXAE)	1
⑨	8930030050	1452 LCD holder	1
⑩	5030001020	LCD LM-1248 B	1
⑪	8930030500	LCD contact SRCN-1452	1
⑫	8210009681	1452 Reflector-1	1
⑬	8510008710	1452 Display shield	1
⑭	8930030640	1452 Display sheet	1
⑮	8930030650	1452 Logic spring	1
⑯	8810005900	Screw B0 No. 0-3 1.4 x 3.5 NI	6
⑰	8930030081	1452 SP holder-1	1
⑱	2510000680	SU-36W 08011G	1
⑲	8930029830	1452 SP rubber	1
⑳	8810007190	Screw FH No. 0-1 M2 x 2.2 NI	1
㉑	8930030071	1452 PTT sheet-1	1
㉒	8310031320	1452 PTT plate	1

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
㉓	8810005860	Screw PH No. 0-1 M2 x 3 NI	4
㉔	8310031330	1452 VR plate	1
㉕	8310031310	1452 Center plate	1
㉖	8930030200	Standoff (BK)	4
㉗	8810006620	Screw PH No. 0-1 M2 x 3.5 NI	2
㉘	8510008690	1452 Module plate	1
㉙	8930029120	1257 Release button (A)	1
㉚	8930026340	1257 Connector seal	1
㉛	8930029160	1257 PTT rubber (A)	1
㉜	8830000570	VR nut (A)	2
㉝	8610008730	Knob N-198 (A)-1	1
㉞	8610008740	Knob N-199 (A)	1
㉟	8610008750	Knob N-200 (A)	1
㊱	8930029180	1257 Jack cap (A)-1	1
㊲	8810005360	Screw PH No. 0-1 M2 x 3 ZK	1
㊳	8210009650	1452 Rear panel	1
㊴	8810005720	Screw PH B0 2 x 20 ZK	2
㊵	6510015550	Connector BRC-R117 (incl. nut)	1
㊶	8930029821	1452 Contact base-1	1
㊷	8310031300	1452 Bottom plate	1
㊸	8810007100	Screw PH No. 0-1 M2 x 2.5 NI	3
㊹	8810006920	Screw No. 0-1 M2 x 5 NI	2
㊺	8930030040	1452 Contact spring	2

Screw abbreviations

PH: Pan head

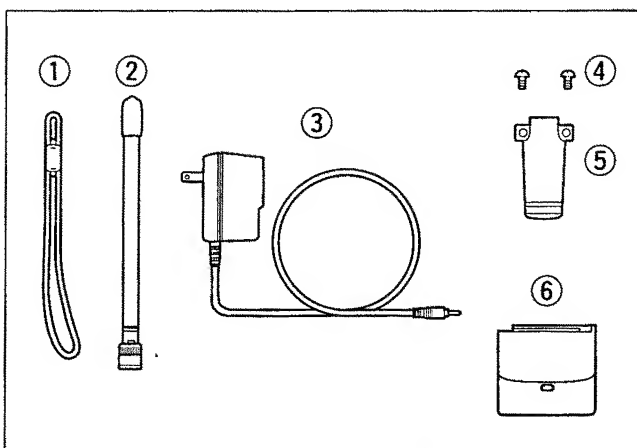
FH: Flat head

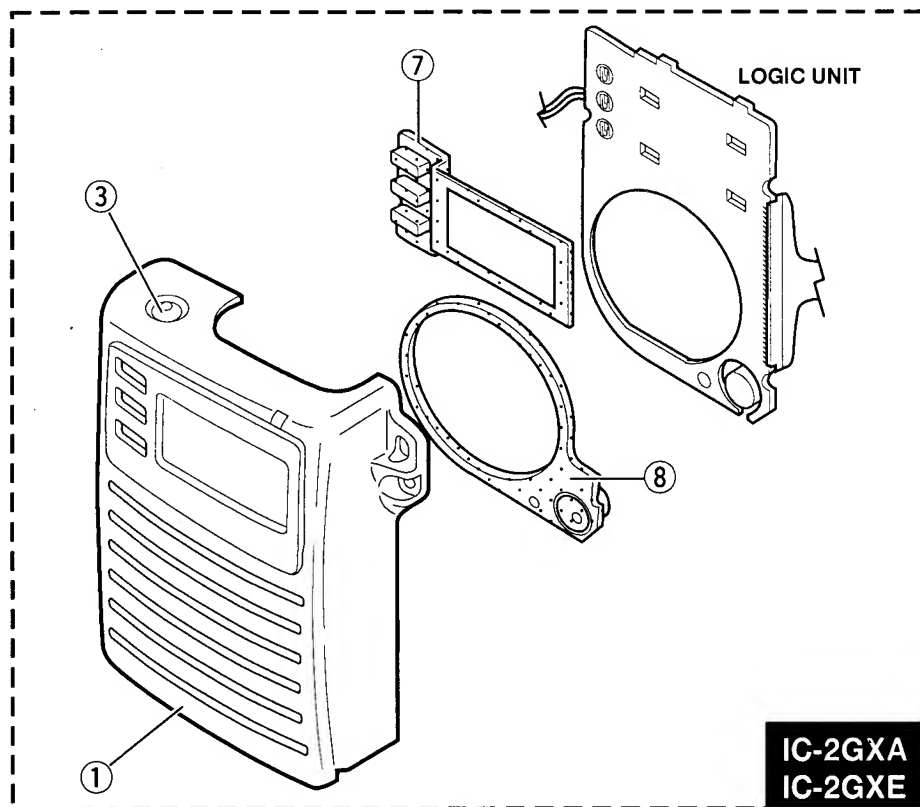
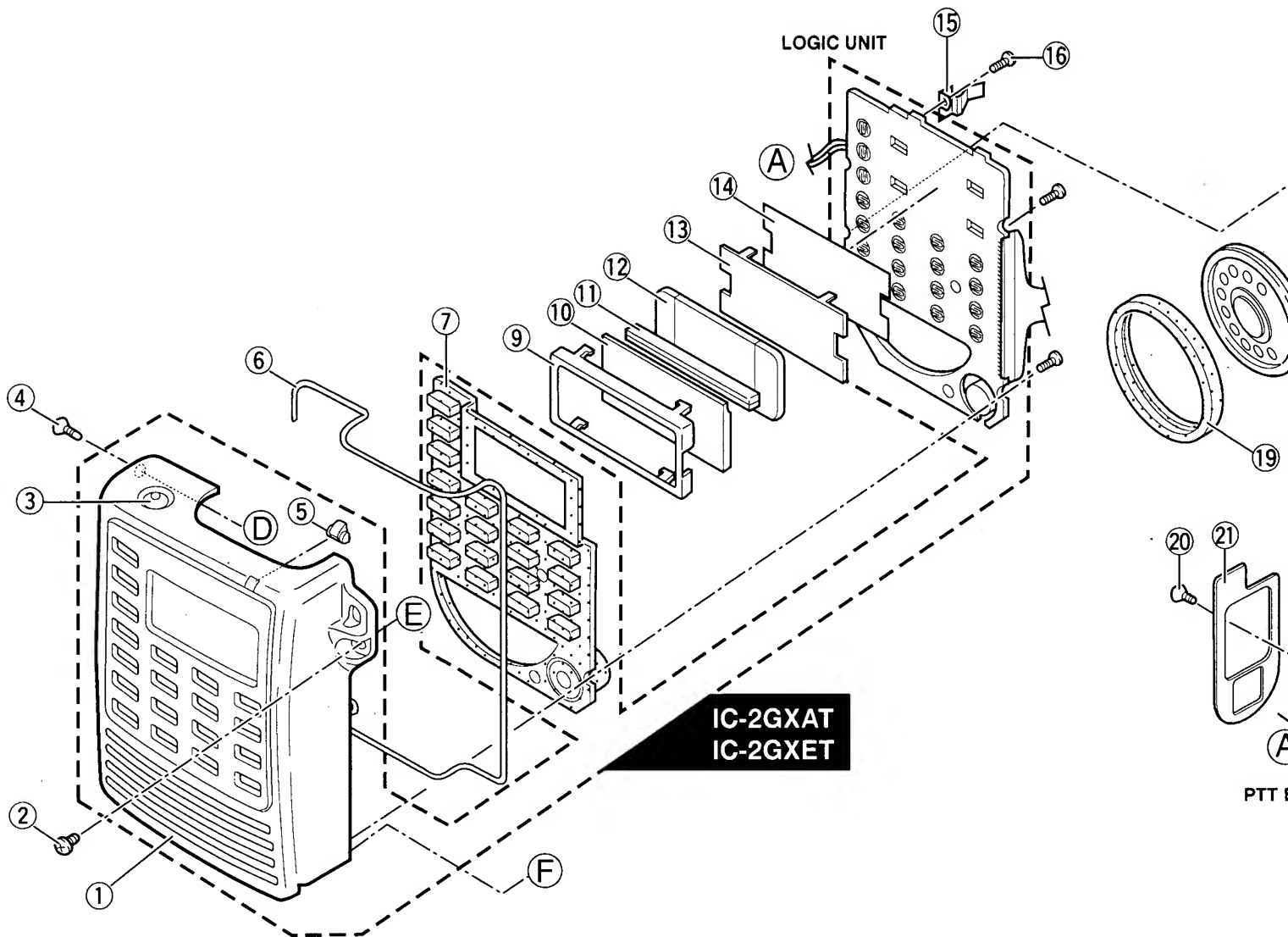
NI: Nickel

ZK: Black

7-2 ACCESSORIES

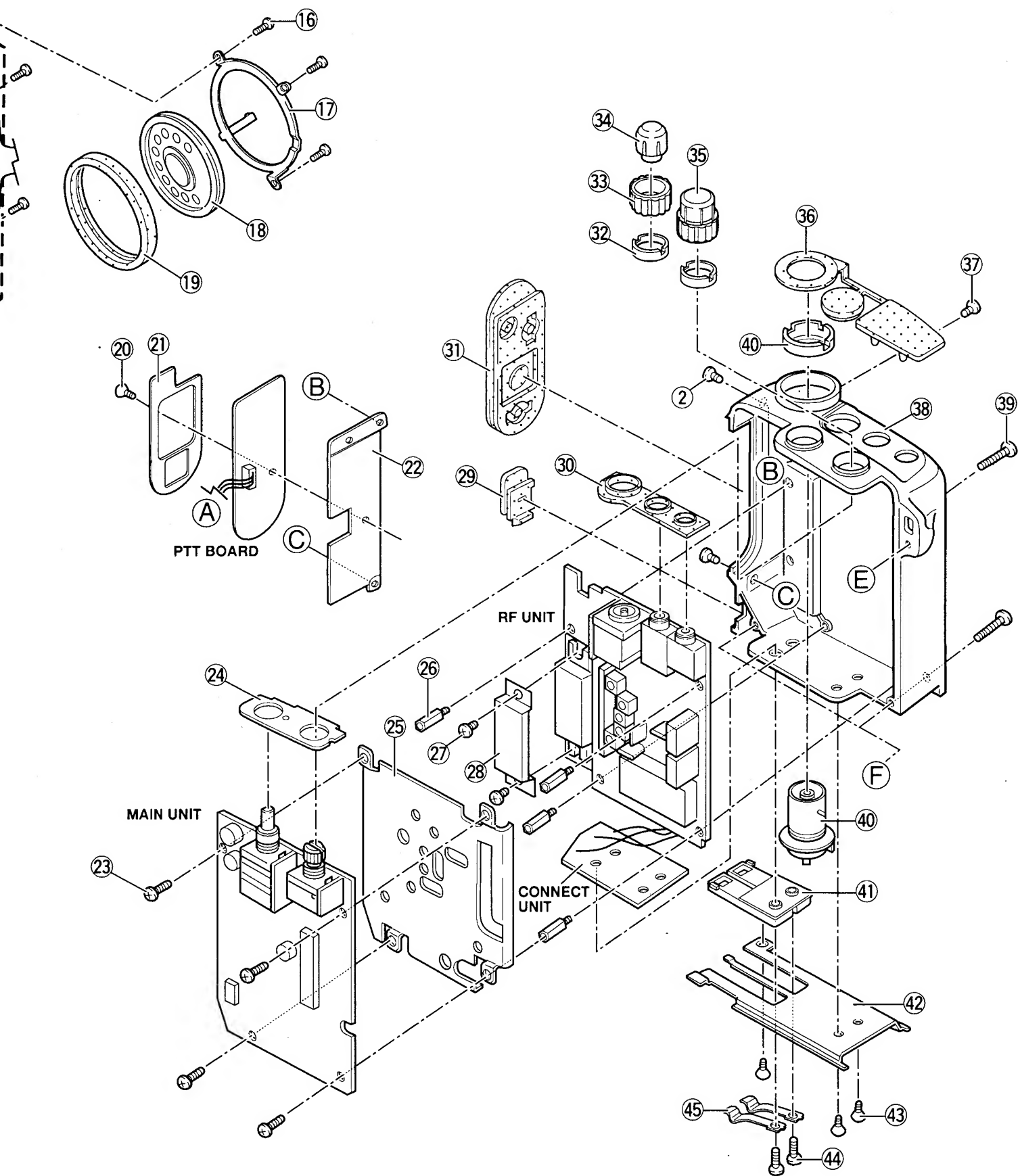
LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
①	8010011960	Handstrap HK-005	1
②	Optional product	FA-B2A Flexible antenna	1
③	Optional product	Wall charger BC-77A (USA)	1
		Wall charger BC-77D (EUR, ITA, DEN)	1
		Wall charger BC-77V (AUS)	1
		No charger supplied for UK version.	—
④	8810005730	Screw BuH M3 x 3 ZK BS	2
⑤	8010008620	752 Belt clip	1
⑥	Optional product	Battery pack BP-130A (SEA, THA)	1
		Battery case BP-160 (EUR, UK, ITA, USA, AUS, DEN)	





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16

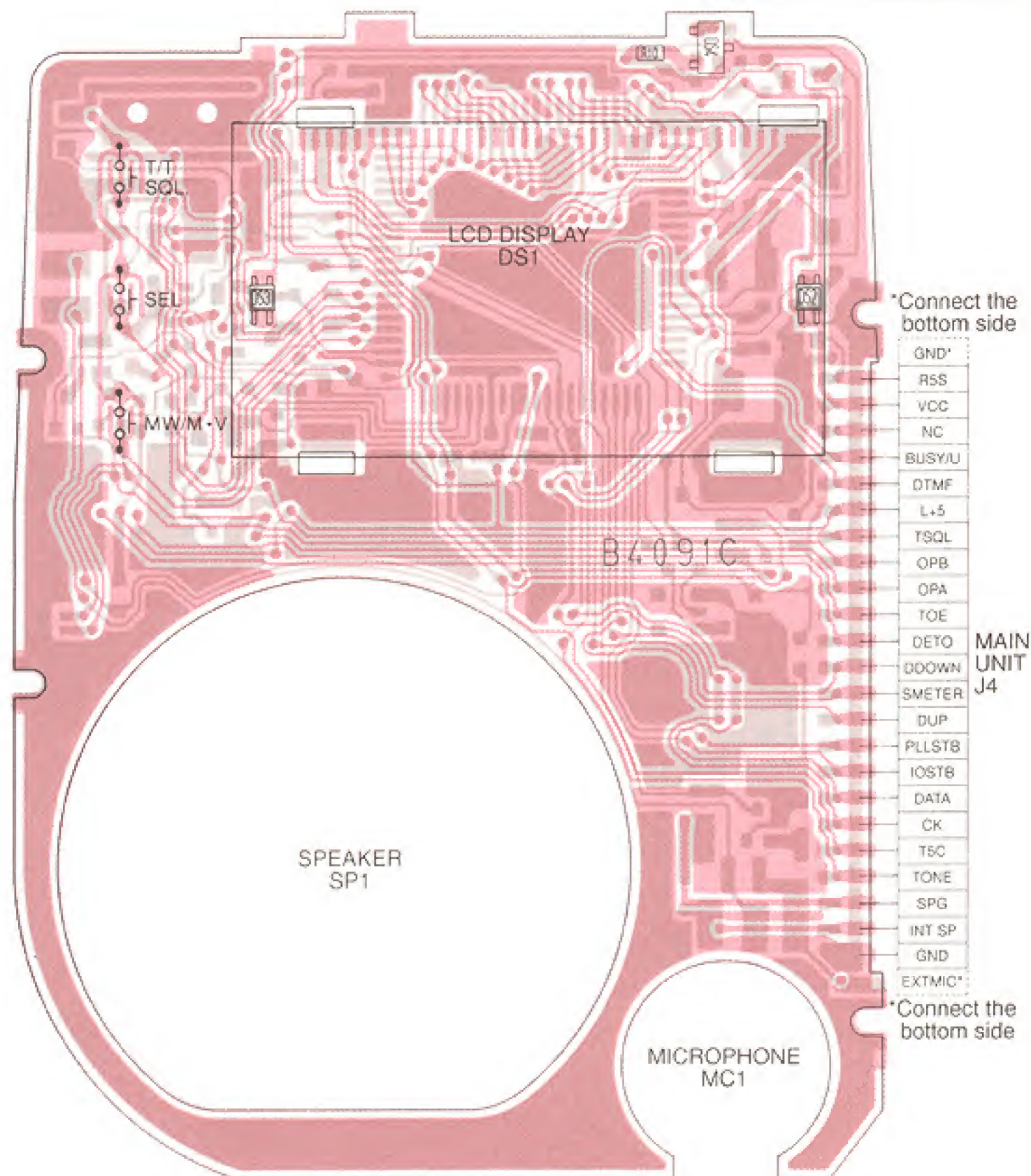


SECTION 8 BOARD LAYOUTS

8-1 LOGIC-B UNIT (IC-2GXA/E)

• LOGIC-B UNIT (TOP VIEW)

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.



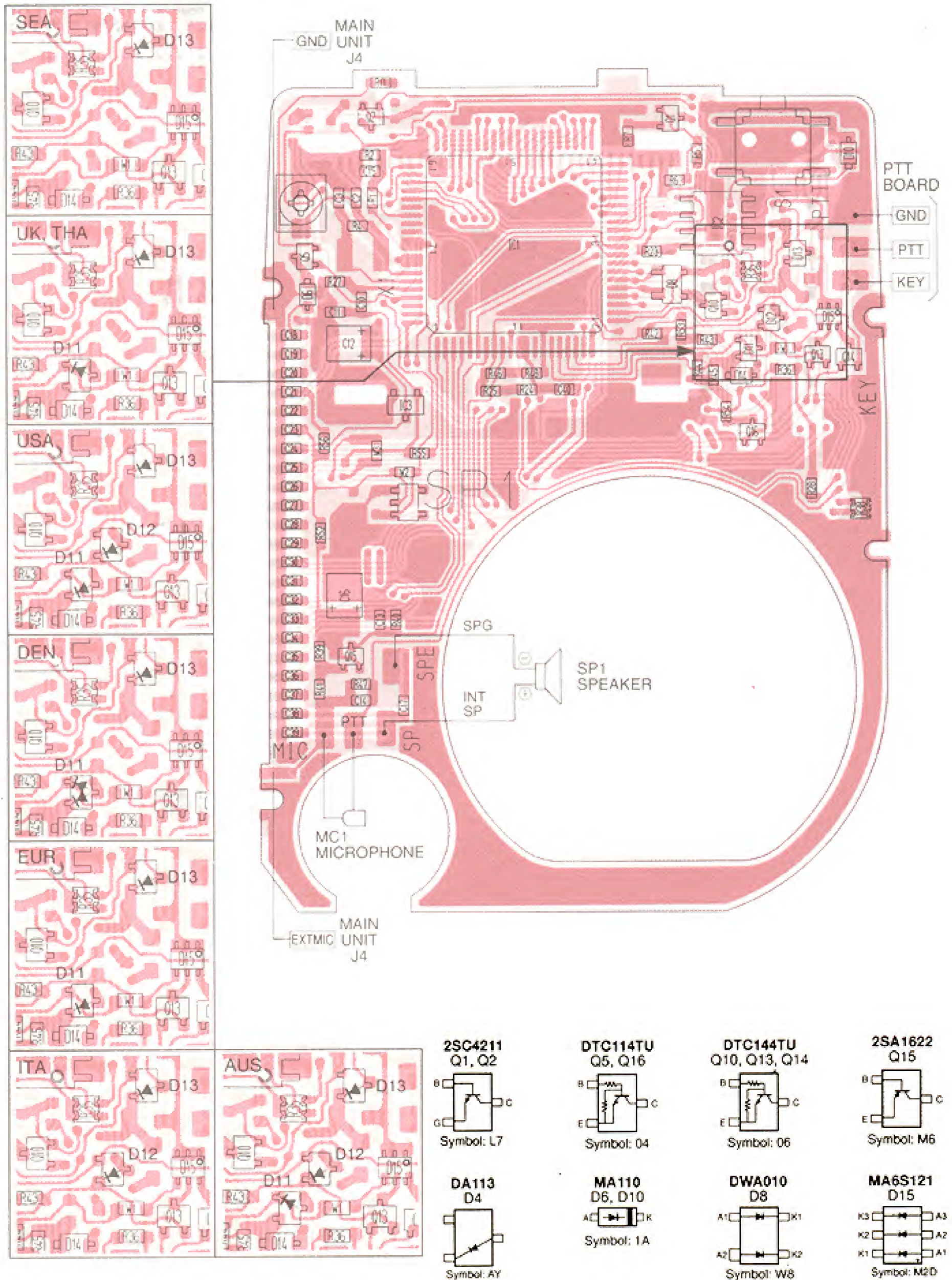
LT1E73A
DS2, DS3



SLM-23VMWS
DS4



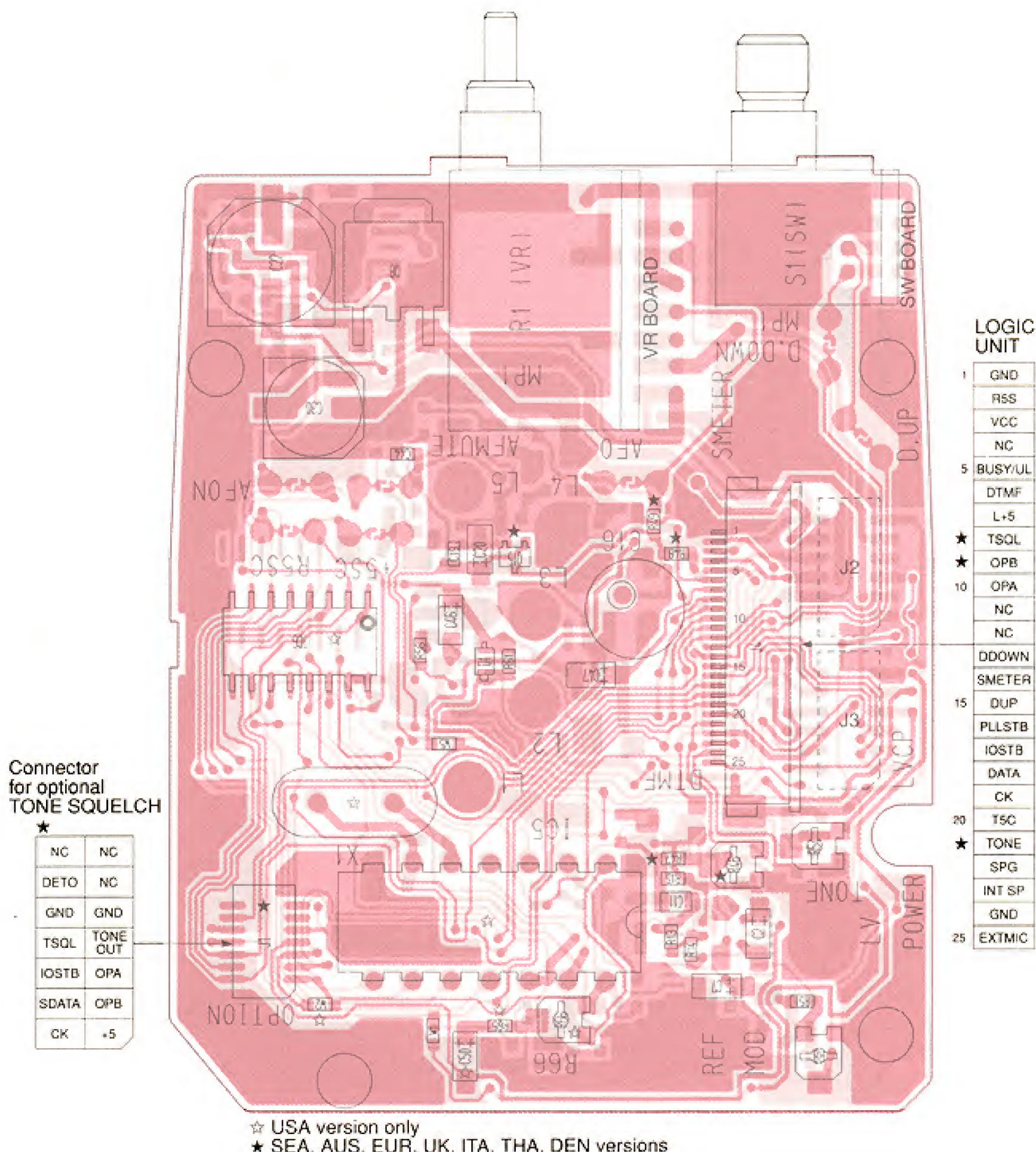
• LOGIC-B UNIT (BOTTOM VIEW)



8-2 MAIN-A UNIT (IC-2GXA/E)

- MAIN-A UNIT (TOP VIEW)

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.



☆ USA version only
★ SEA, AUS, EUR, UK, ITA, THA, DEN versions

2SB1201 S
08



Symbol: B1201

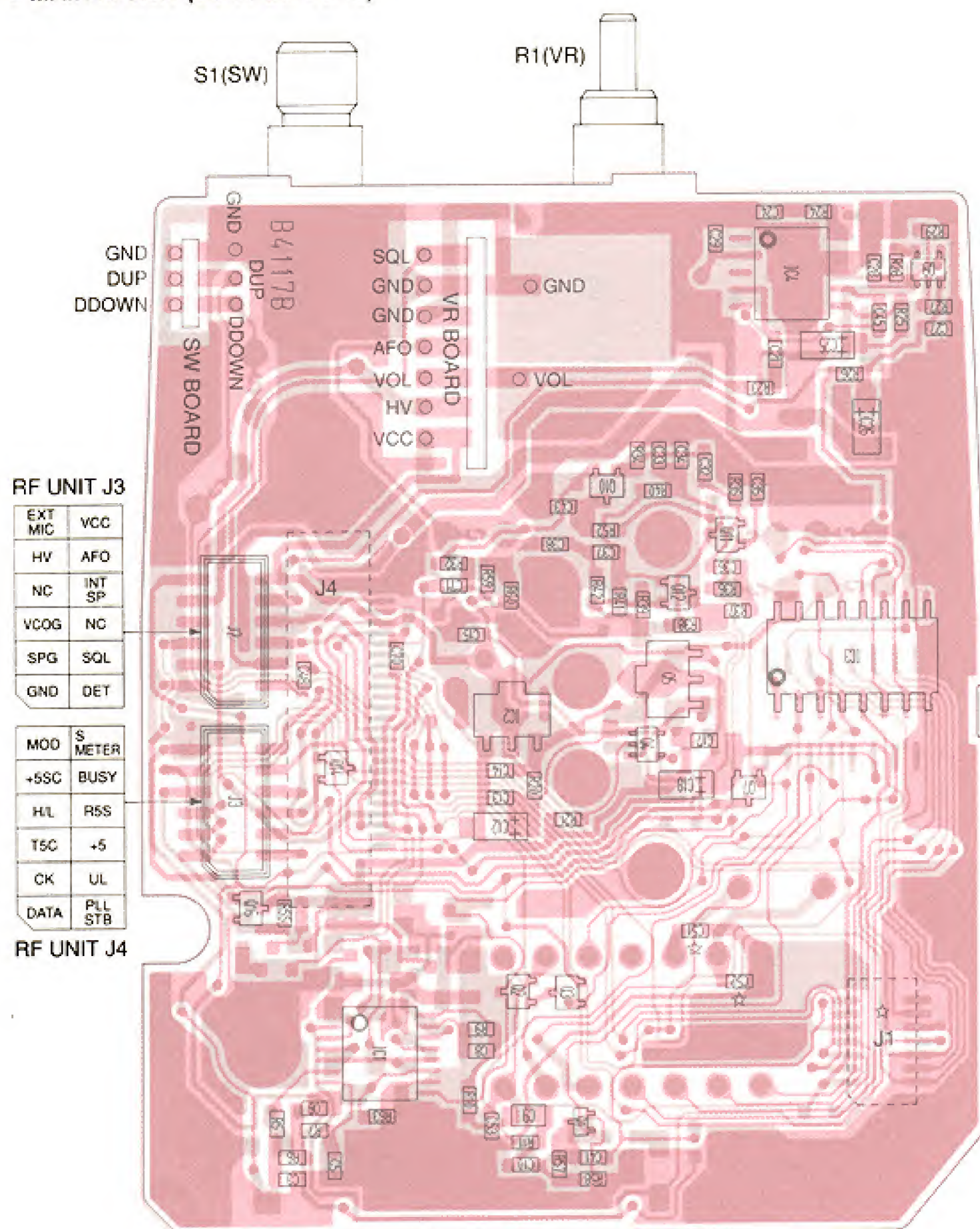
DTC144 EU
Q15*

Symbol: 26
*IC-2GXA/E
(except U.S.A. version)

1SS357
D1

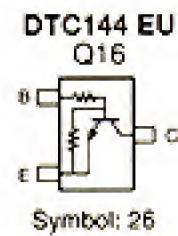
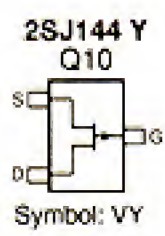
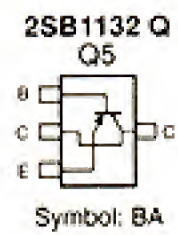
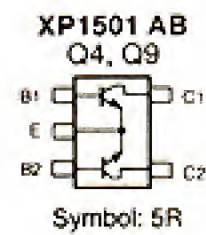
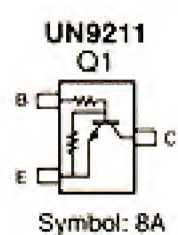


Symbol: 53



☆ USA version only

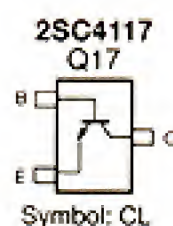
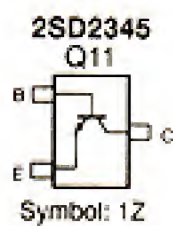
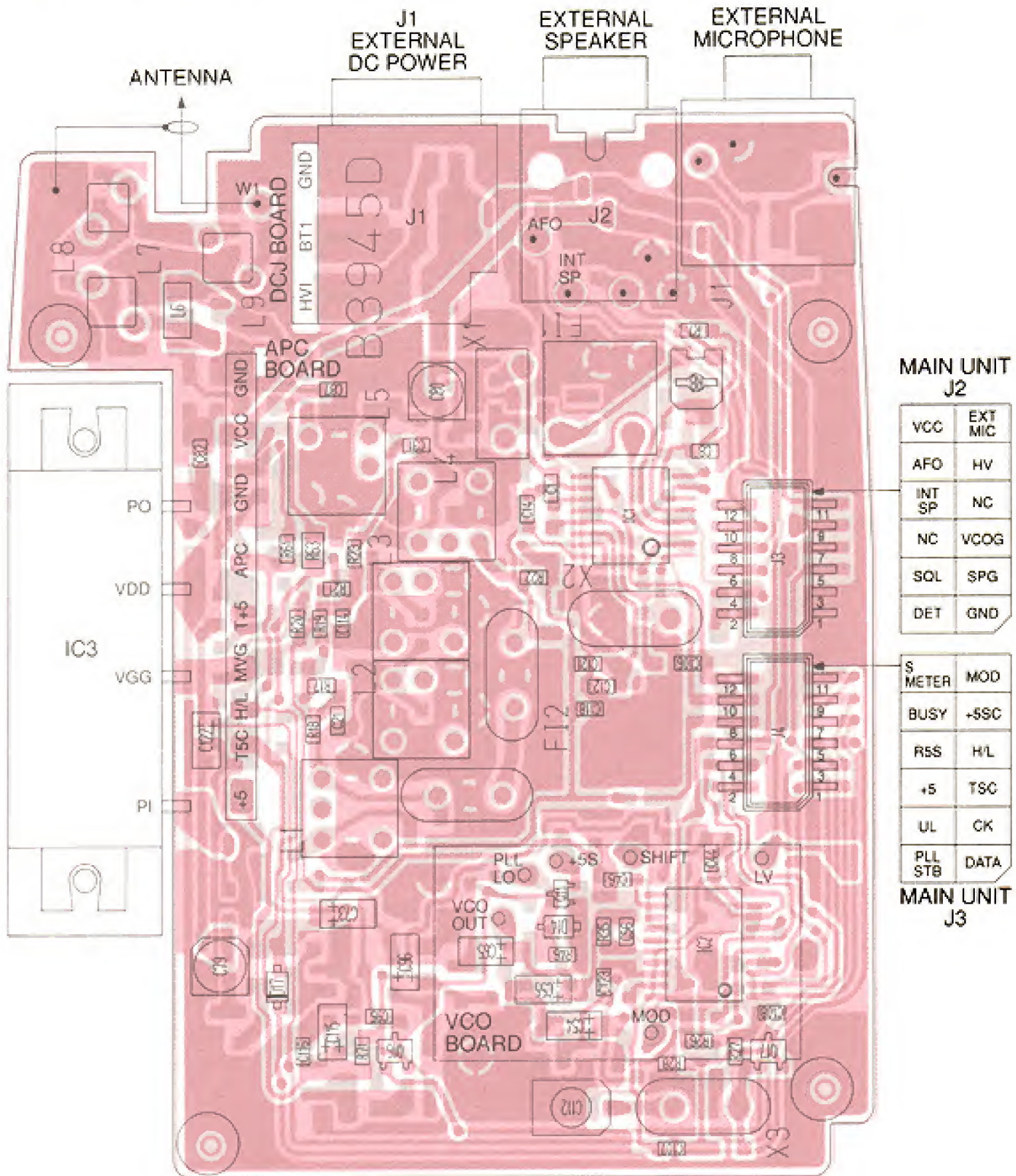
★ SEA, AUS, EUR, UK, ITA, THA, DEN versions



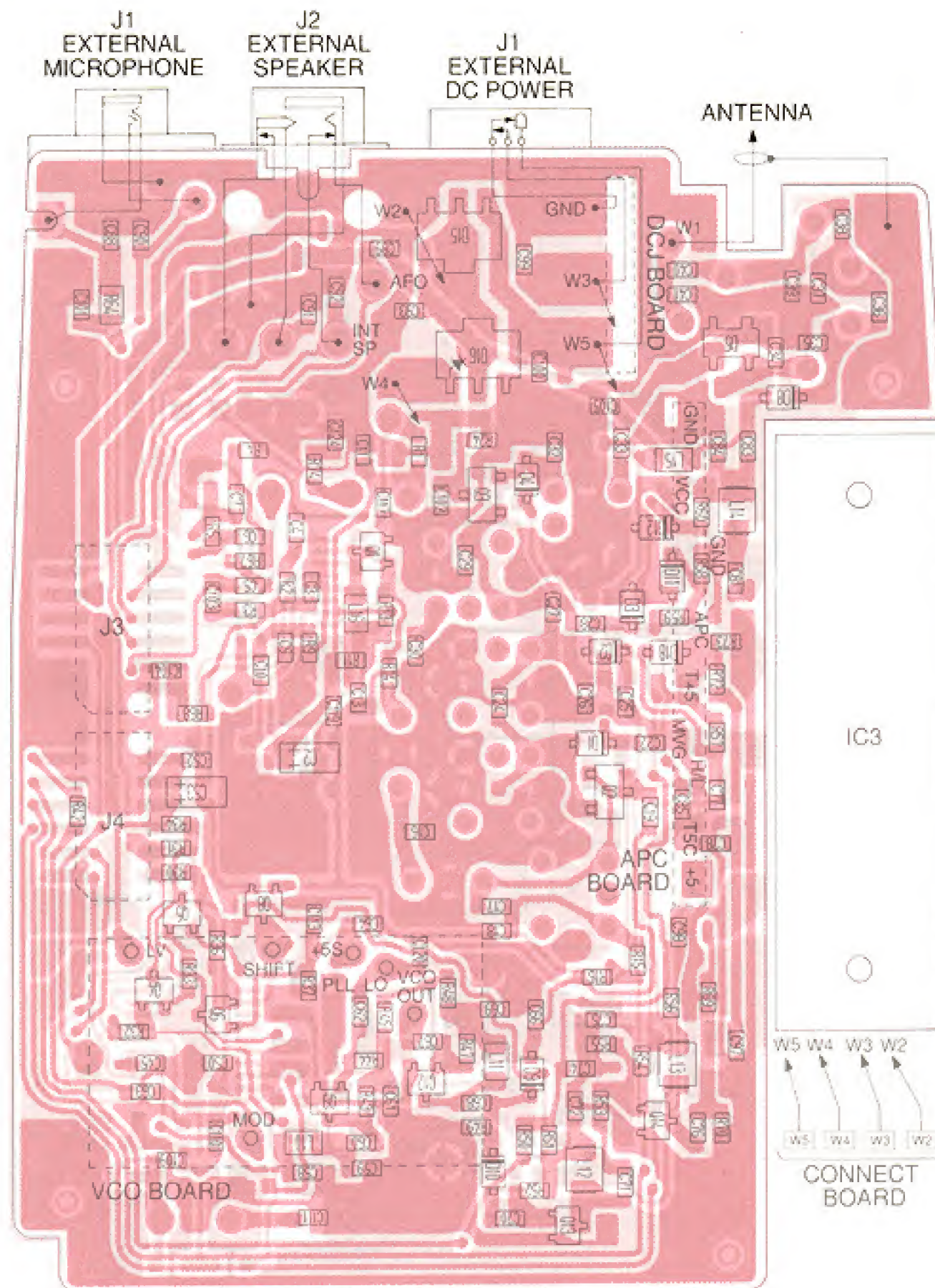
8-3 RF UNIT

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

• RF UNIT (TOP VIEW)



• RF UNIT (BOTTOM VIEW)



2SC4215

Q1



Symbol: QO

2SK360IGD

Q2, Q3



Symbol: IGO

2SC4117 GR

Q4, Q5



Symbol: CL

2SK880 Y

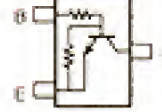
Q6



Symbol: Y

DTC144 EU

Q8



Symbol: 26

2SC4403

Q9, Q12



Symbol: LY3

2SC4405

Q13, Q14



Symbol: OY3

HVU350
D1 - D4



Symbol: 4

MA862
D5



Symbol: M11

MA77
D8 - D10



Symbol: 4B

HSU88
D11, D12



Symbol: 9

SB30-03 P
D15, D16



Symbol: SG

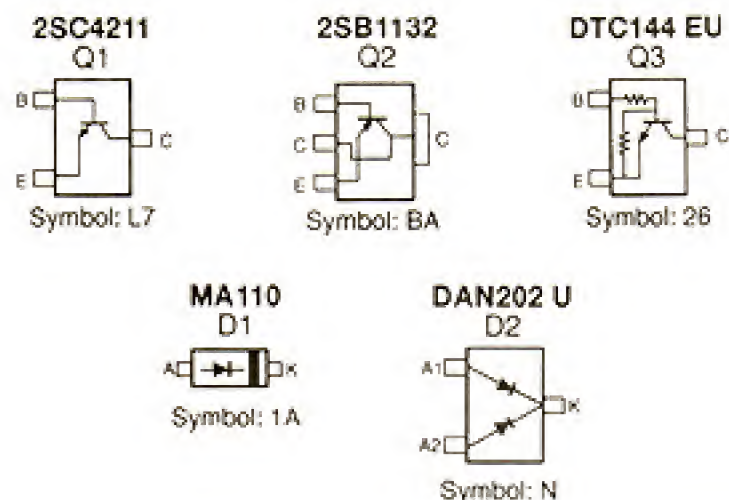
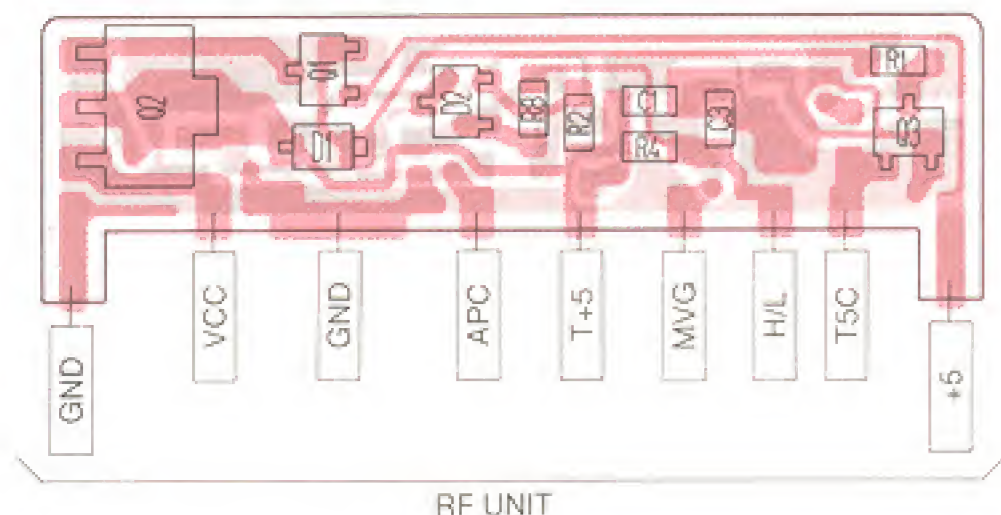
MA110
D18



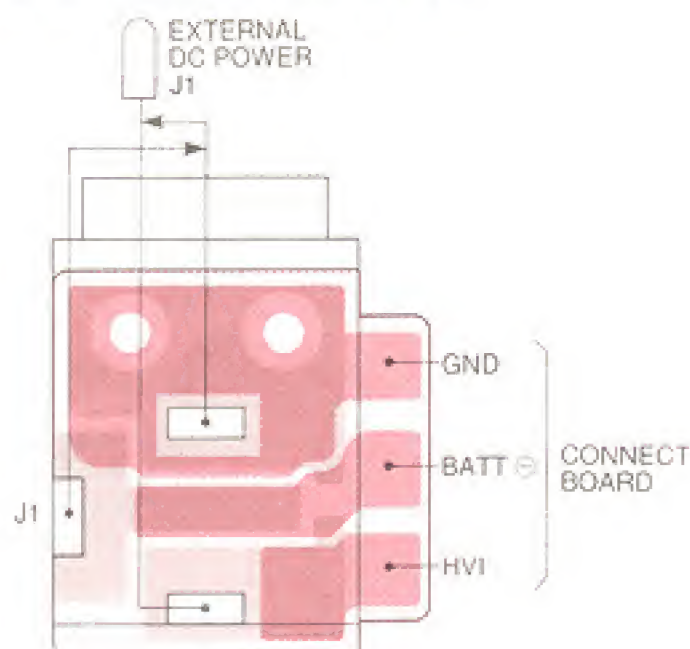
Symbol: 1A

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

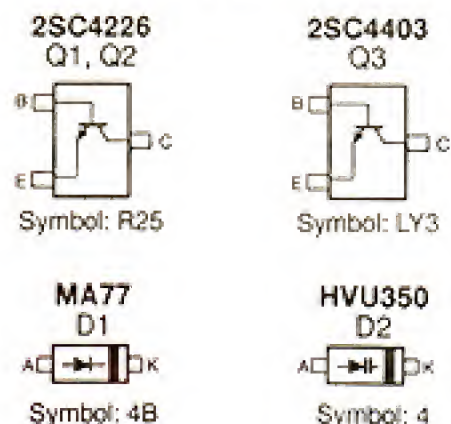
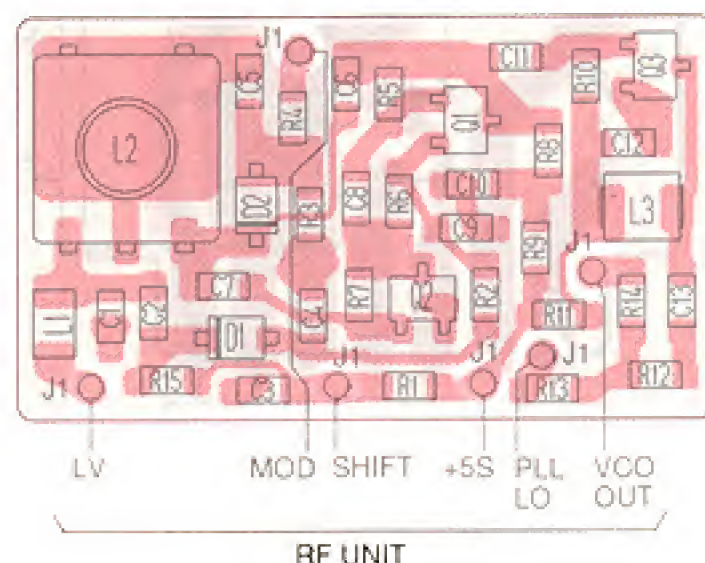
• APC BOARD (TOP VIEW)



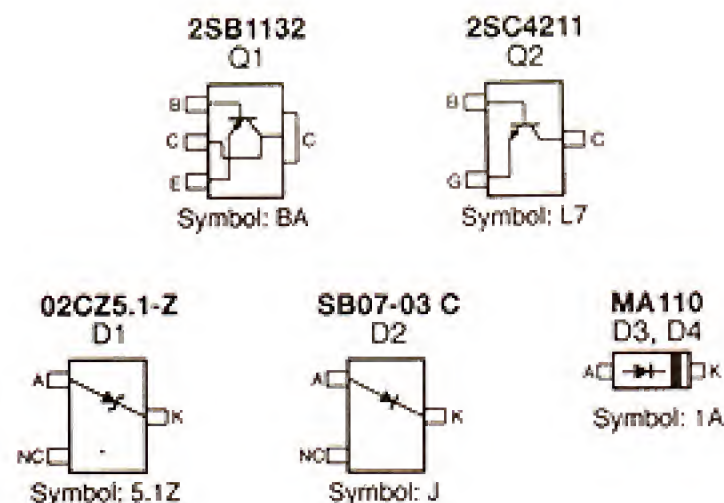
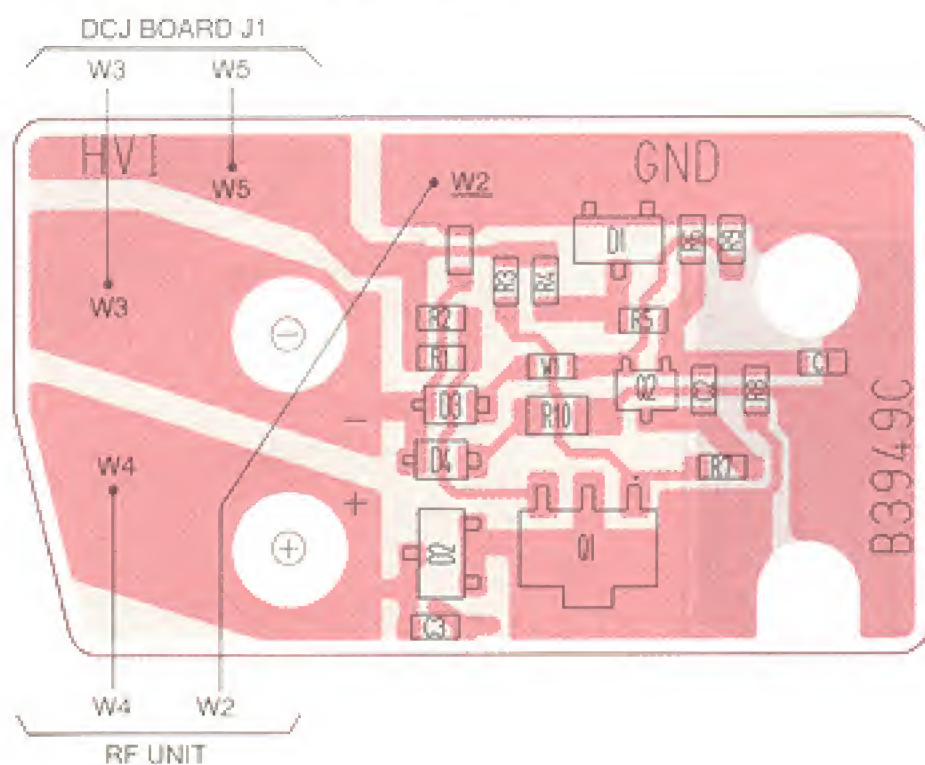
• DCJ BOARD (TOP VIEW)



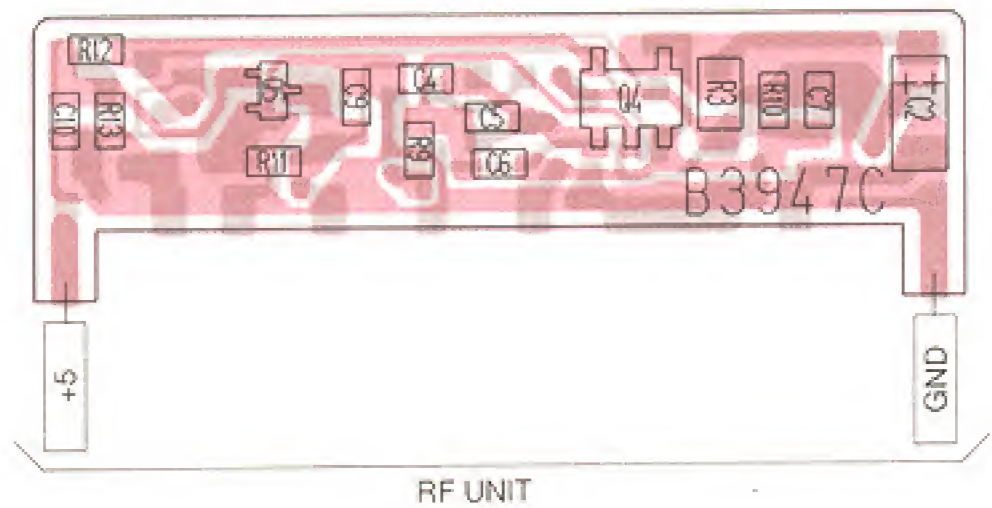
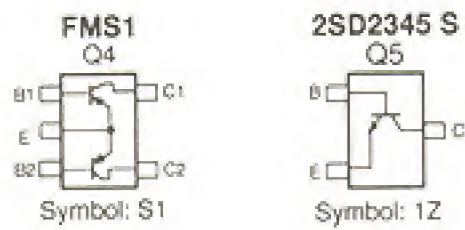
• VCO BOARD (TOP VIEW)



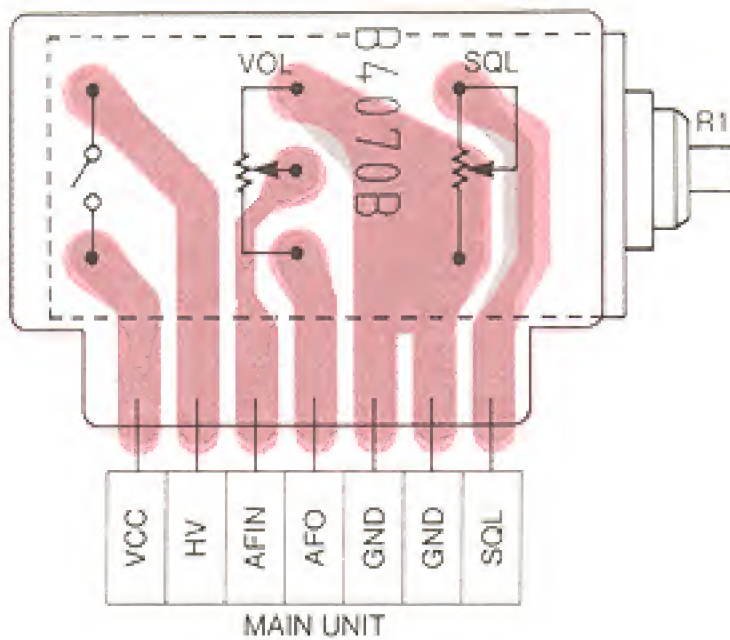
• CONNECT UNIT (TOP VIEW)



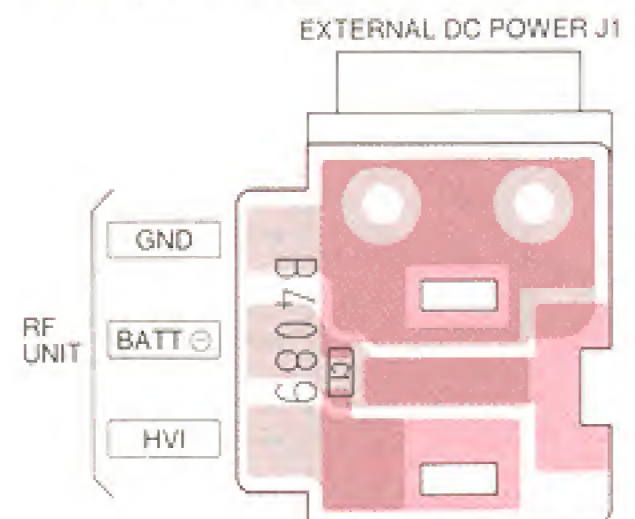
• APC BOARD (BOTTOM VIEW)



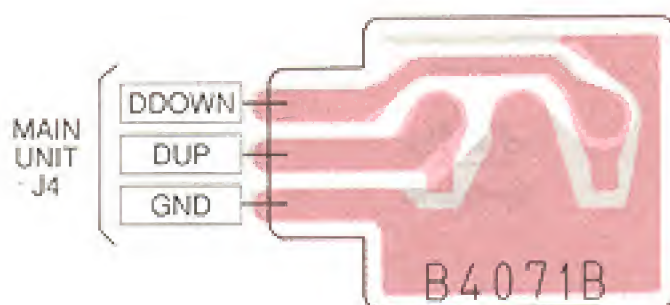
• VR BOARD (BOTTOM VIEW)



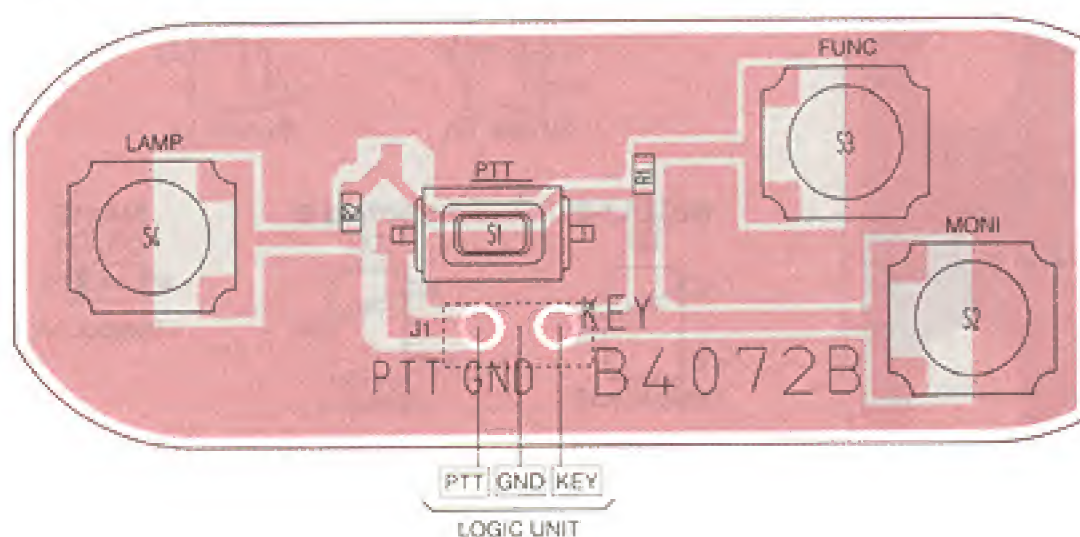
• DCJ BOARD (BOTTOM VIEW)



• SW BOARD (BOTTOM VIEW)



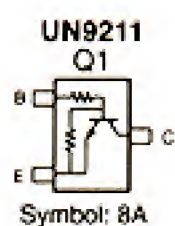
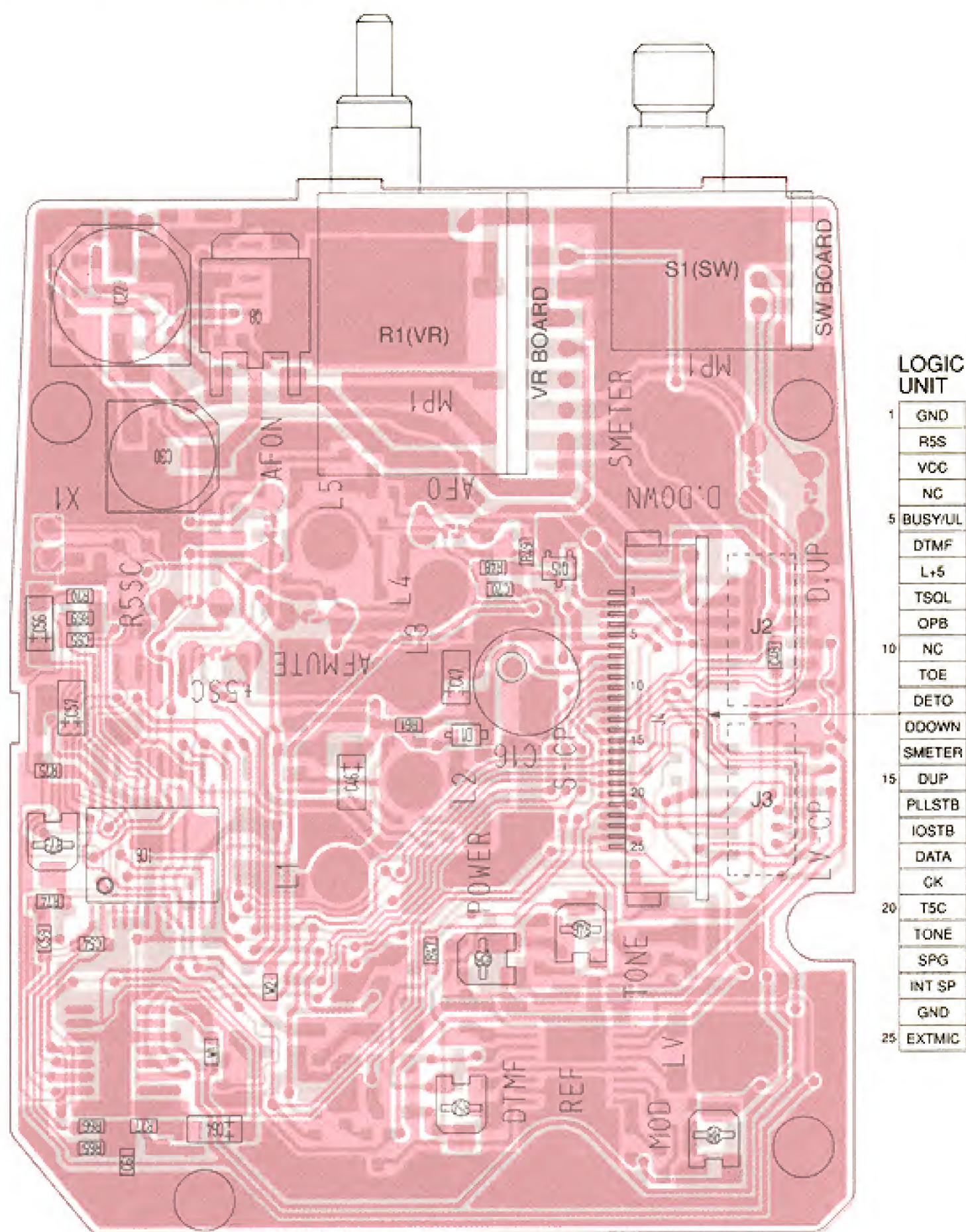
• PTT BOARD (BOTTOM VIEW)



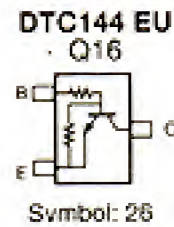
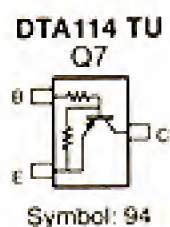
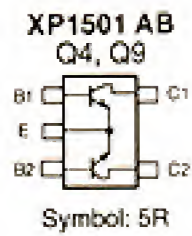
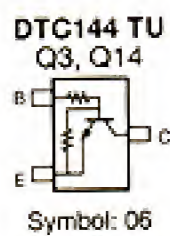
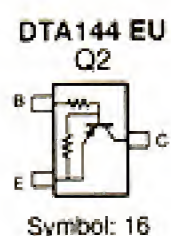
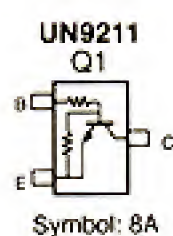
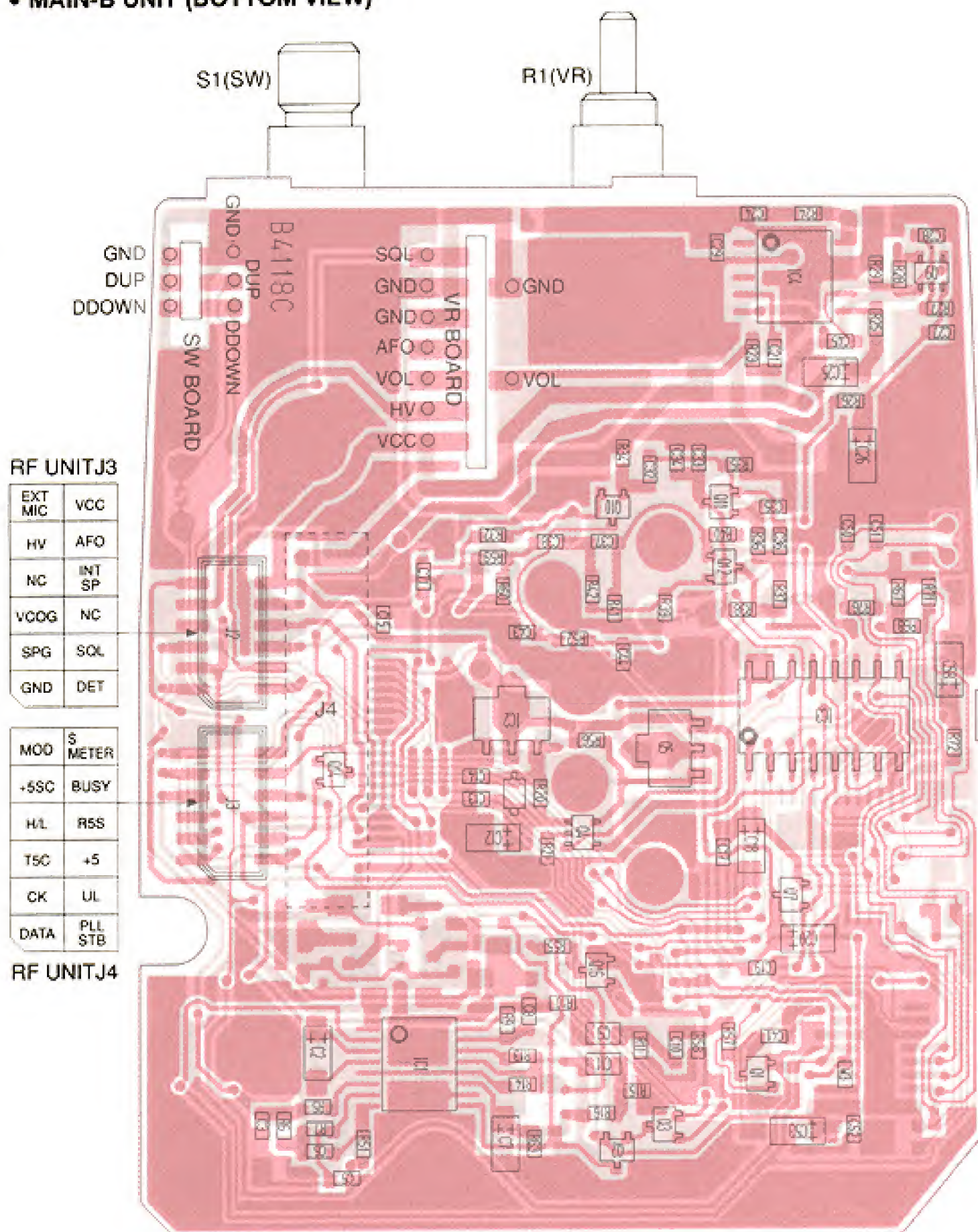
8-4 MAIN-B UNIT (IC-2GXAT/ET)

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

• MAIN-B UNIT (TOP VIEW)



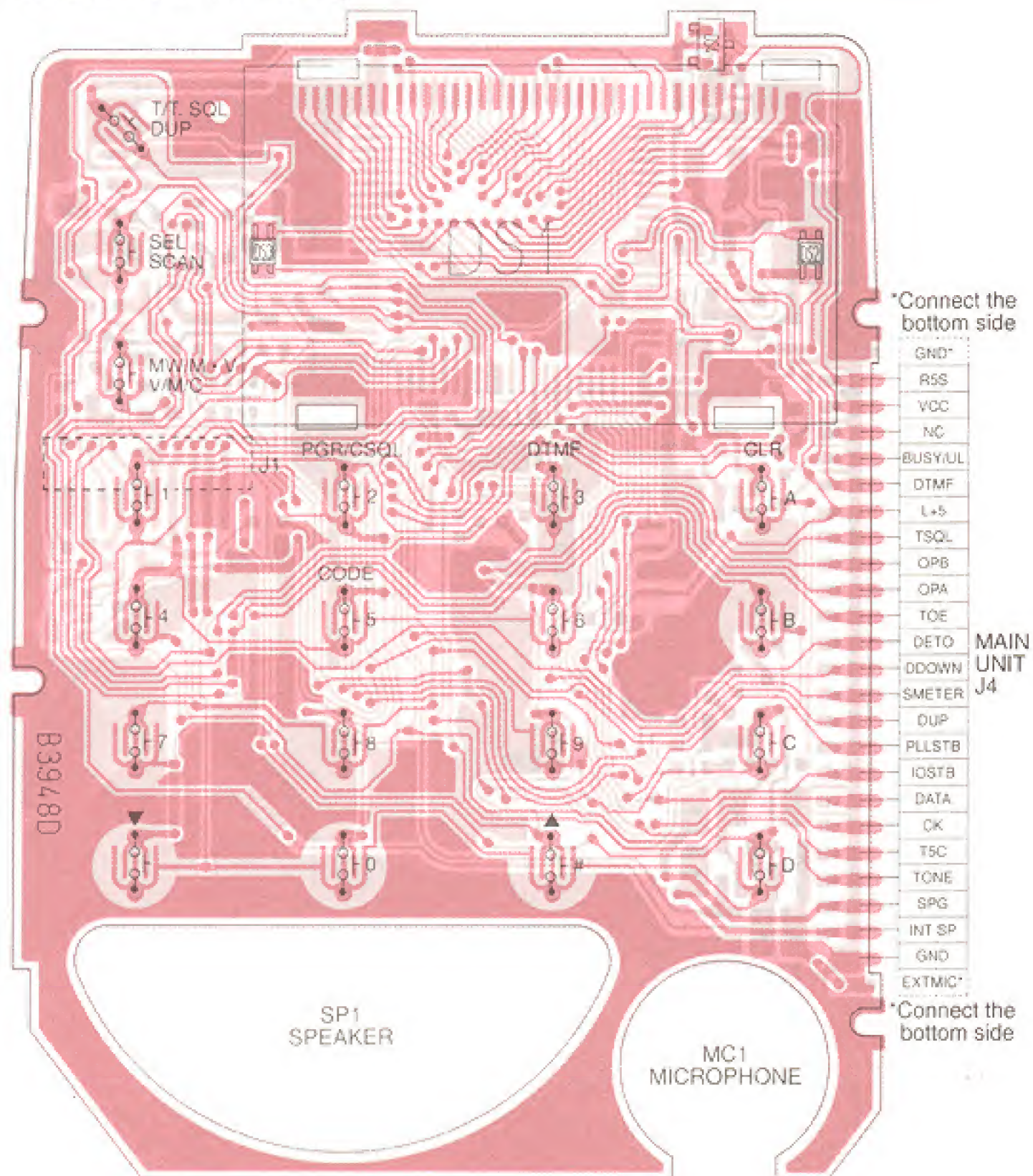
• MAIN-B UNIT (BOTTOM VIEW)



8-5 LOGIC-A UNIT (IC-2GXAT/ET)

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

• LOGIC-A UNIT (TOP VIEW)



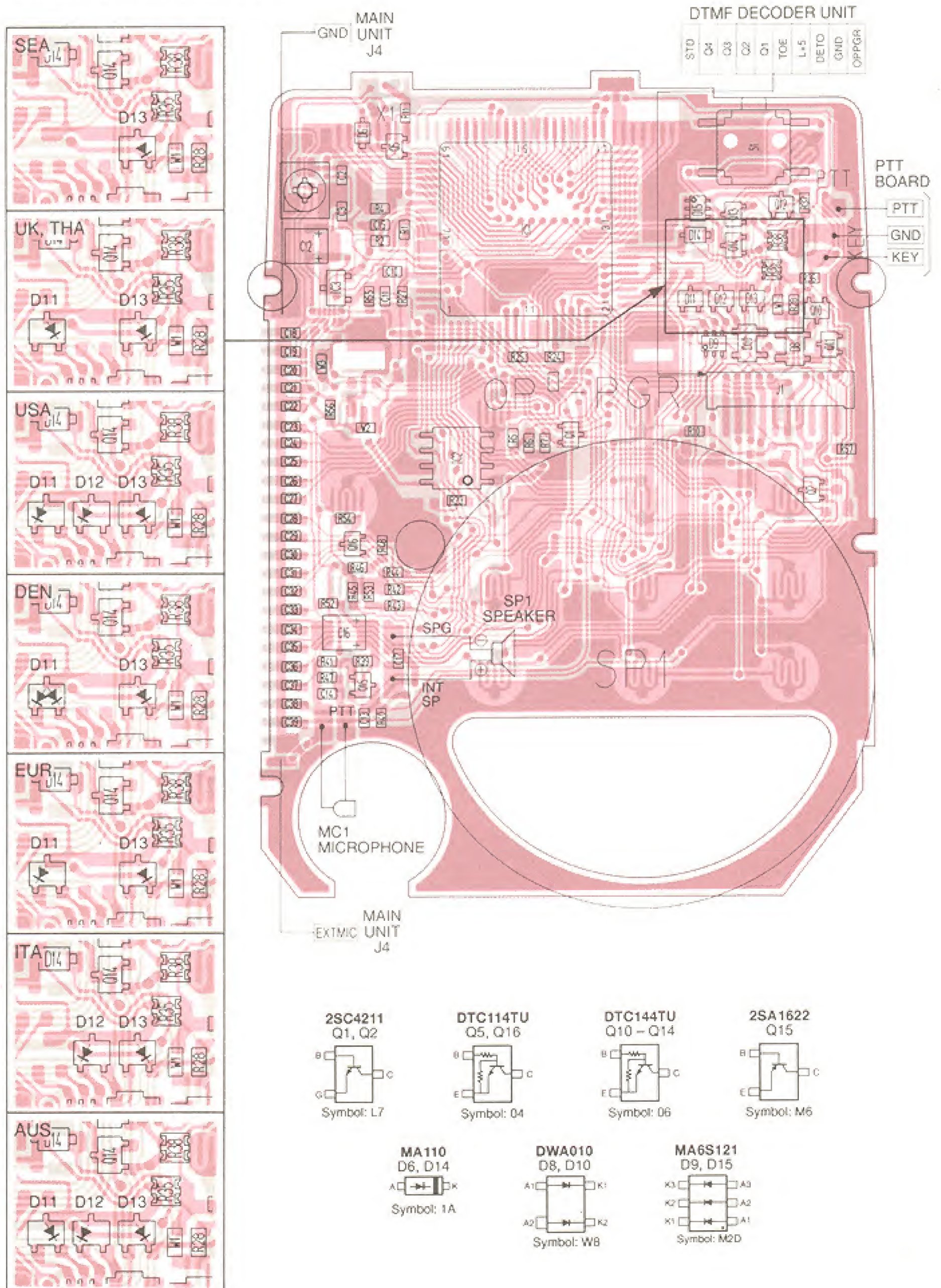
LT1E73A
DS2, DS3



SLM-23VMWS
DS4



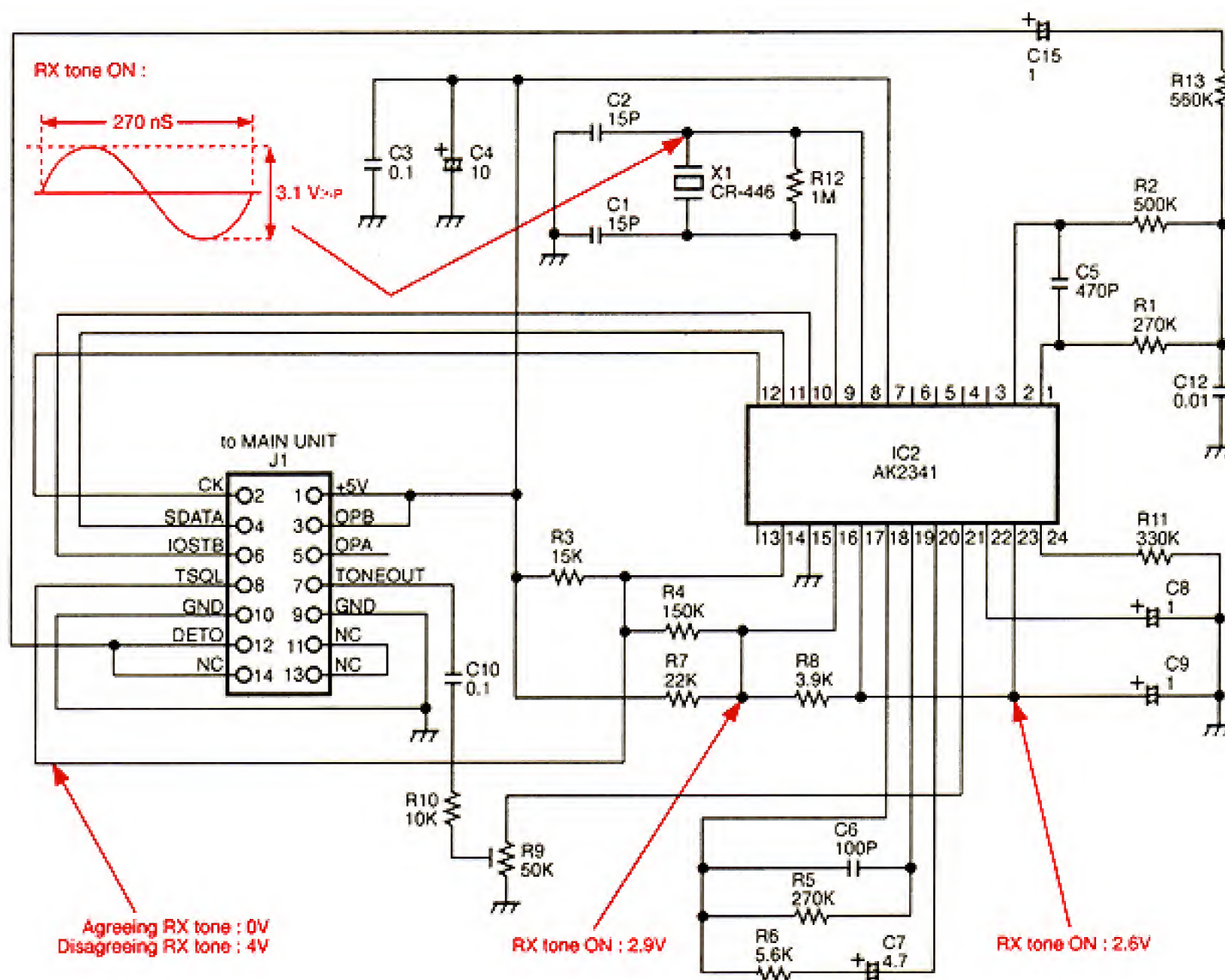
• LOGIC-A UNIT (BOTTOM VIEW)



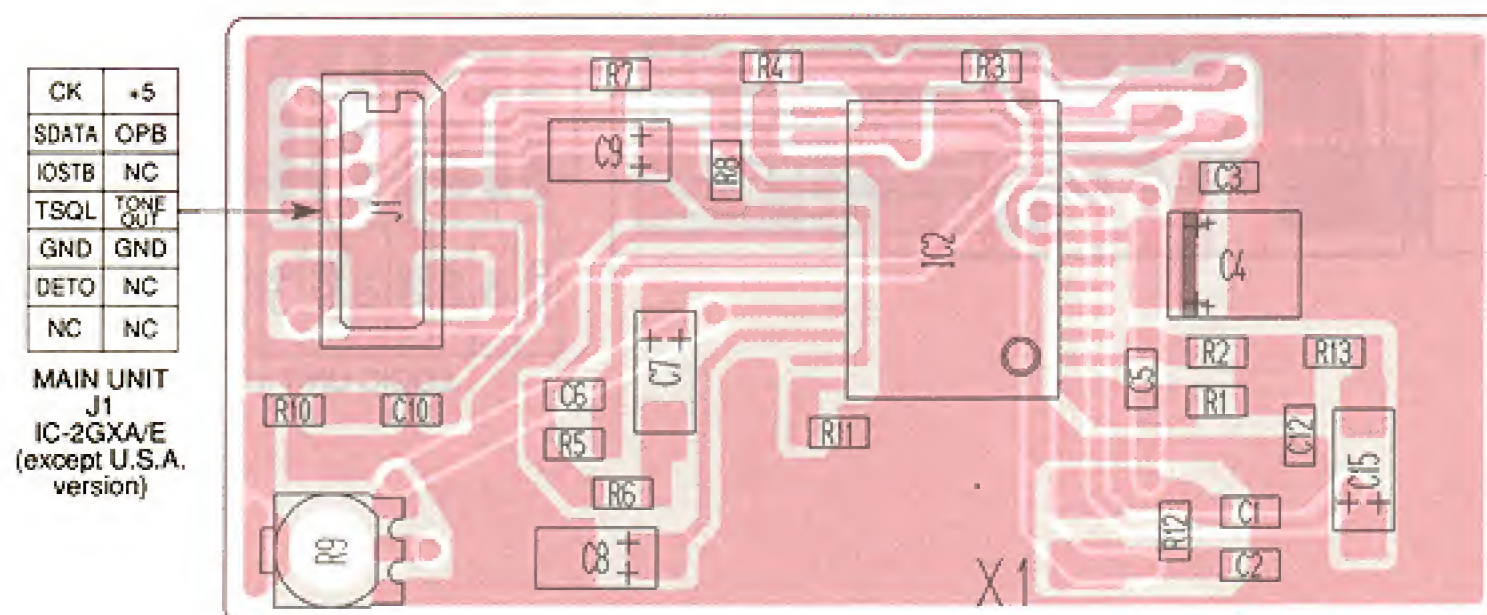
SECTION 9 OPTIONAL UNITS

9-1 UT-86 TSQL UNIT (For IC-2GXA/E Non U.S.A. versions)

GX

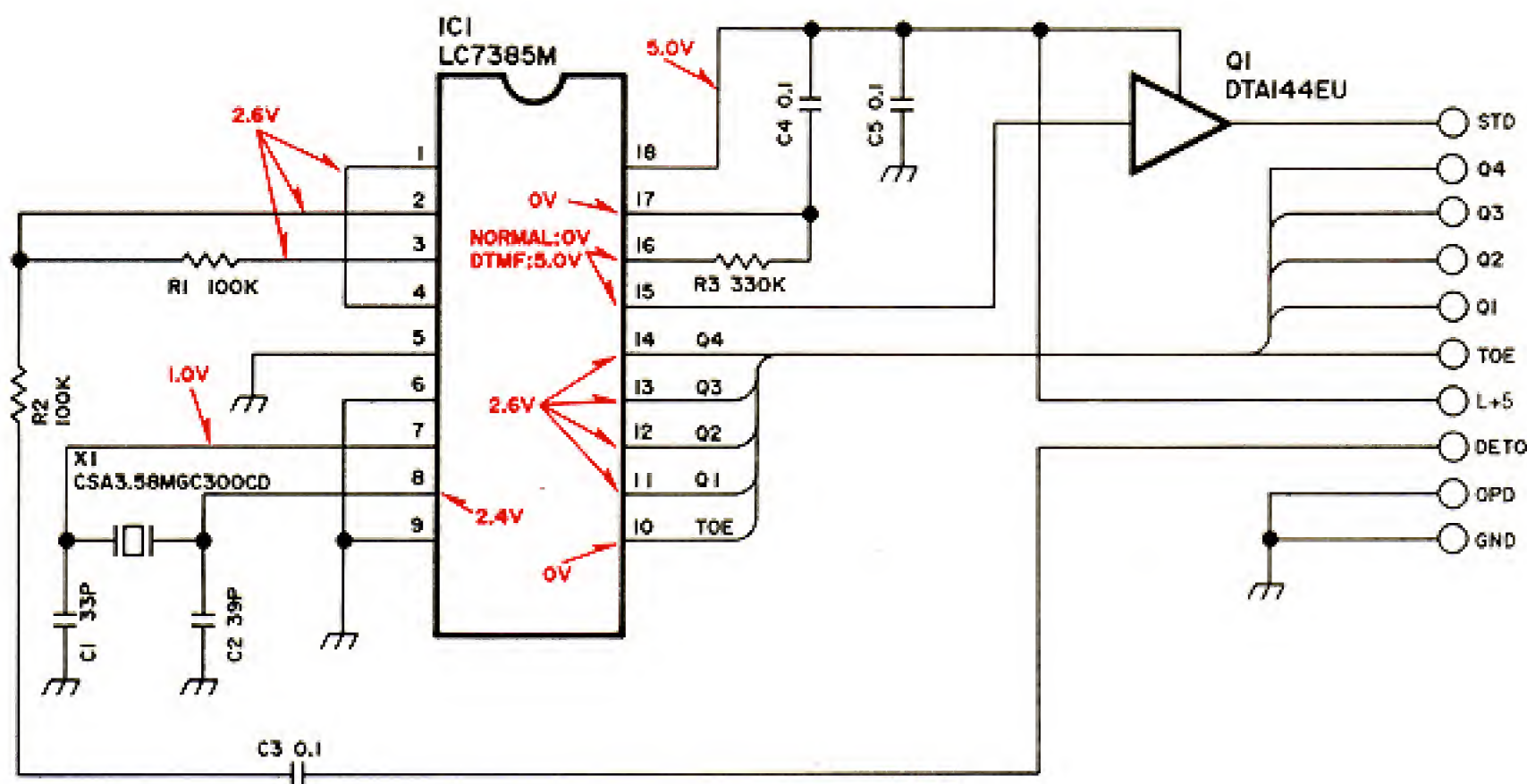


• TSQL UNIT (TOP VIEW)



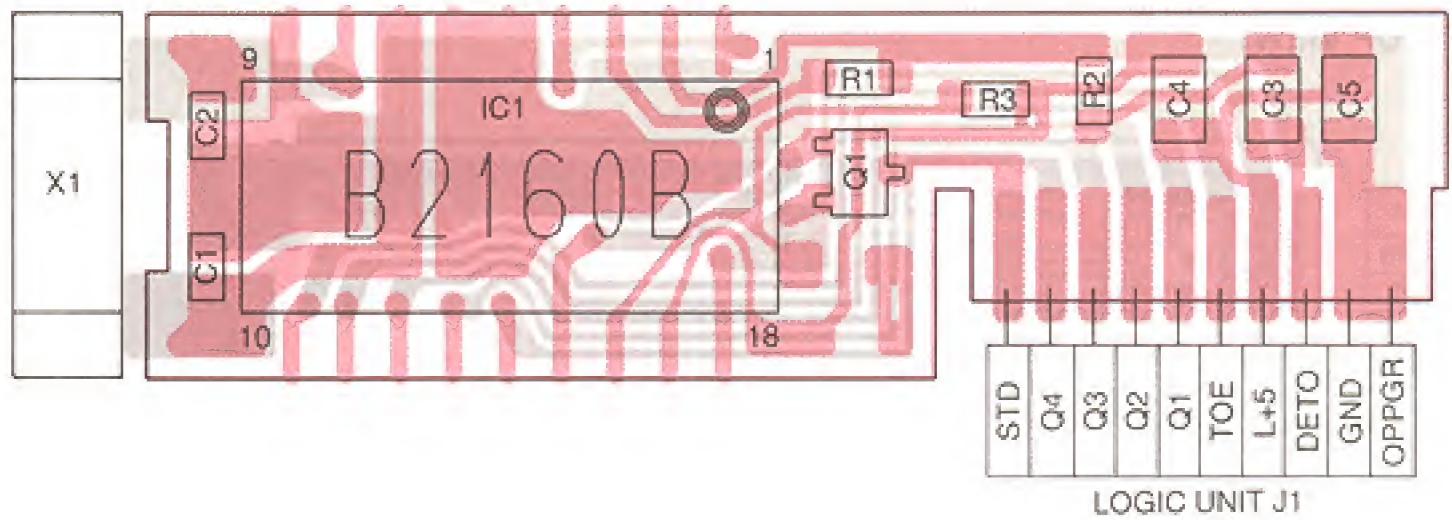
9-2 UT-49 DTMF DECODER UNIT (For IC-2GXAT/ET)

GXT

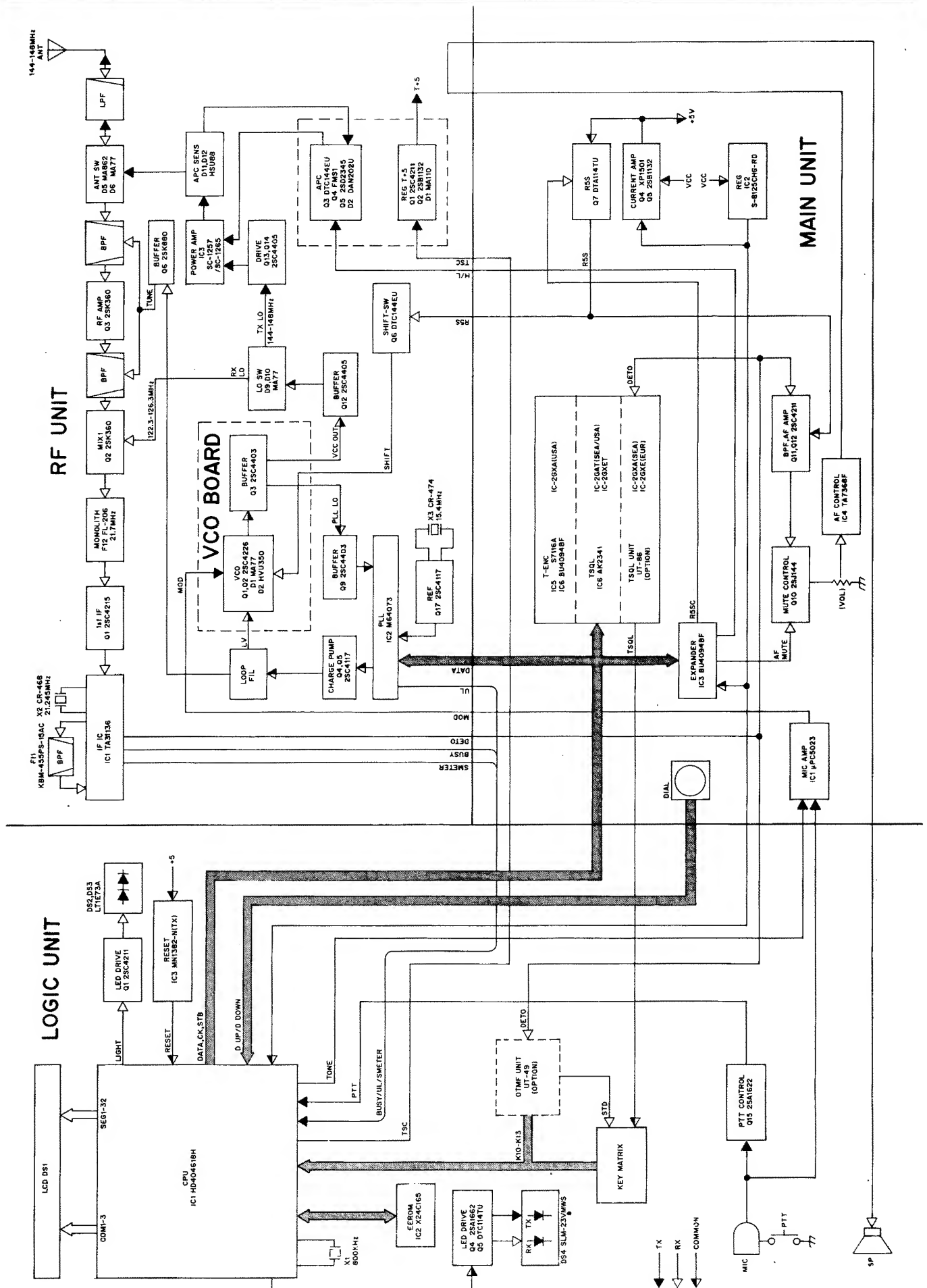


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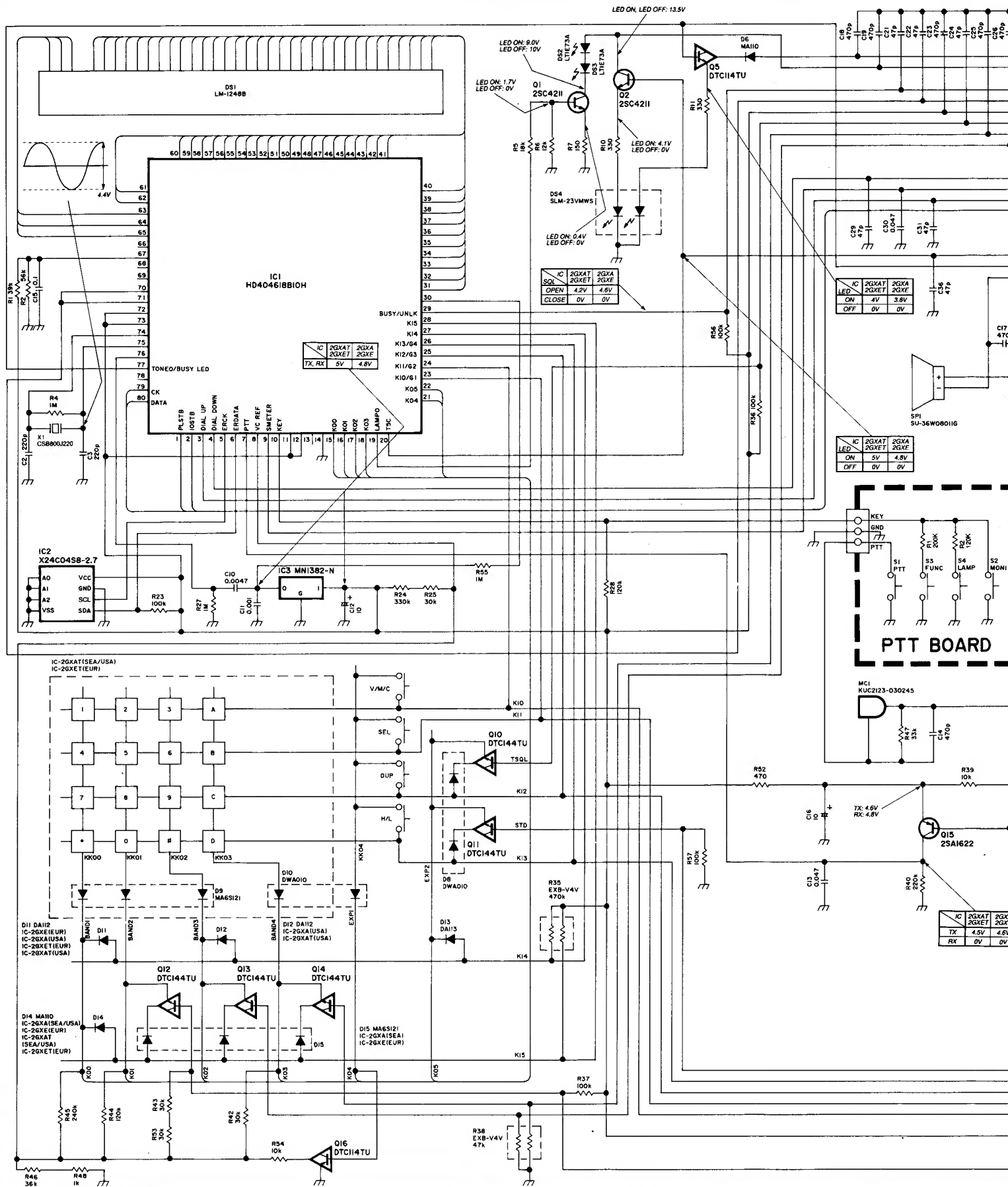
• UT-49 DTMF DECODER UNIT (TOP VIEW)

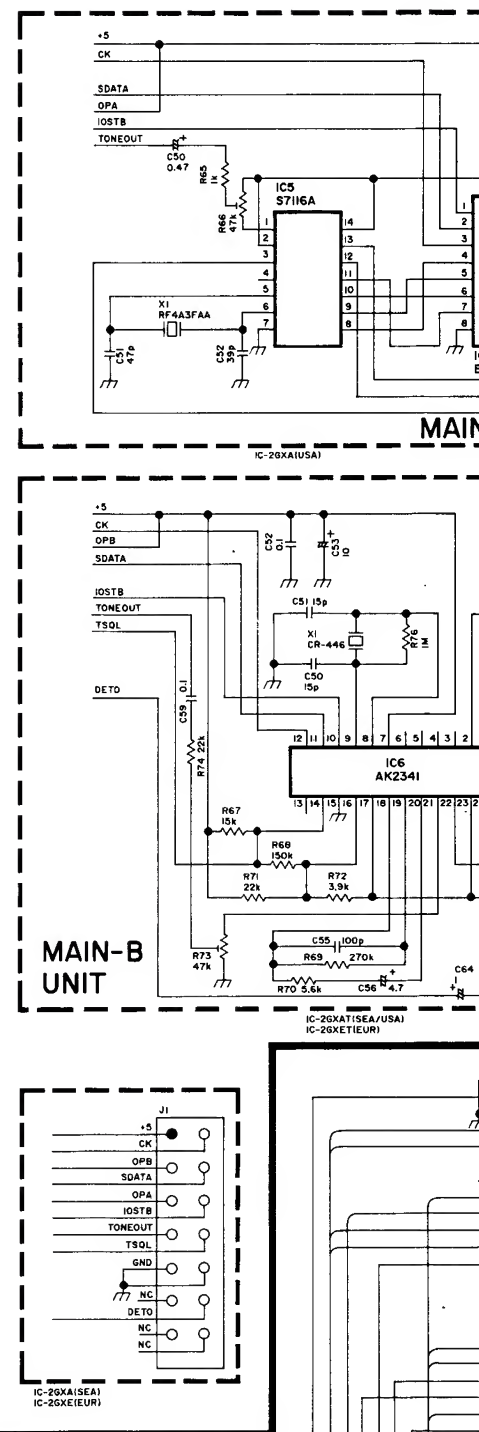
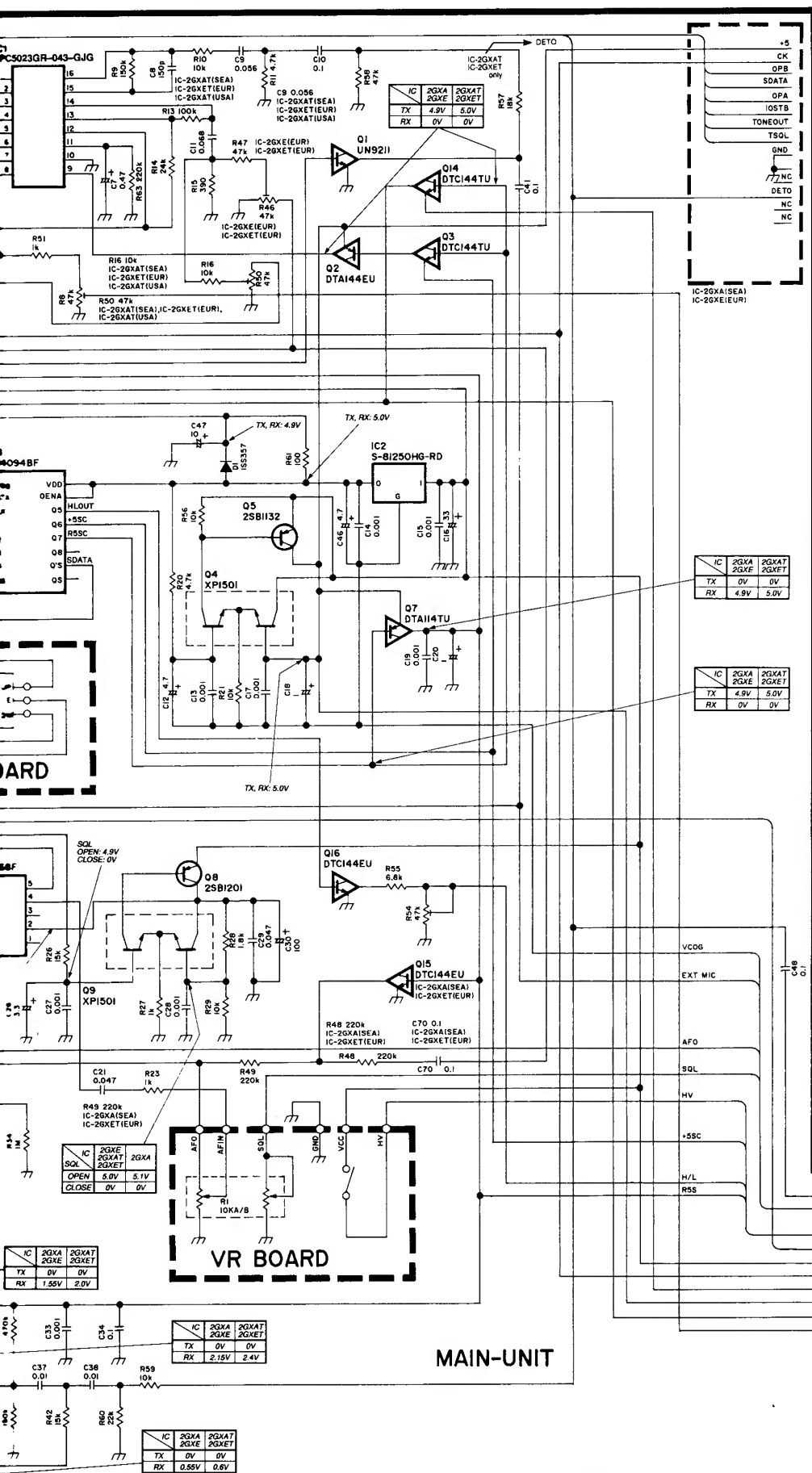


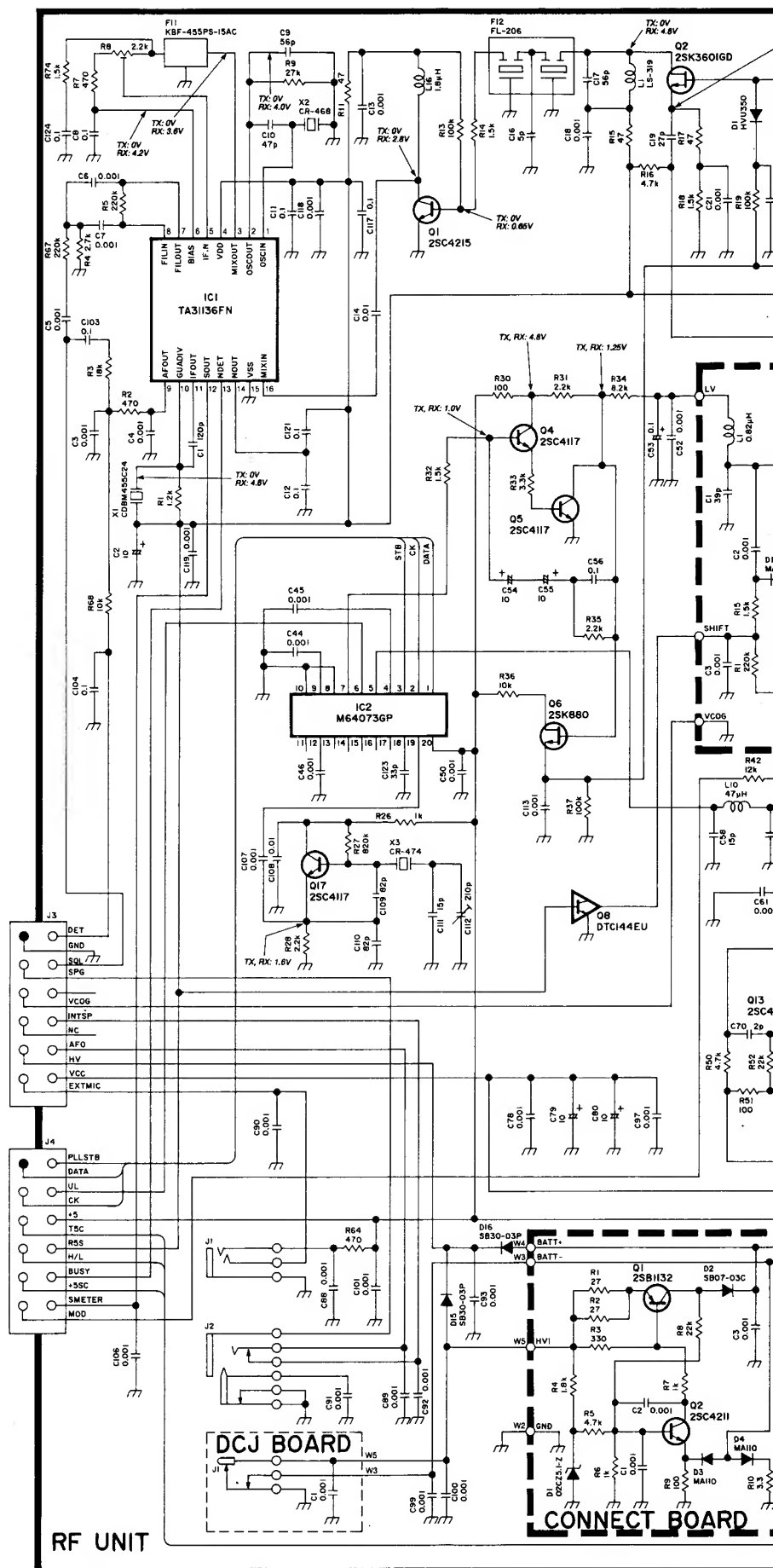
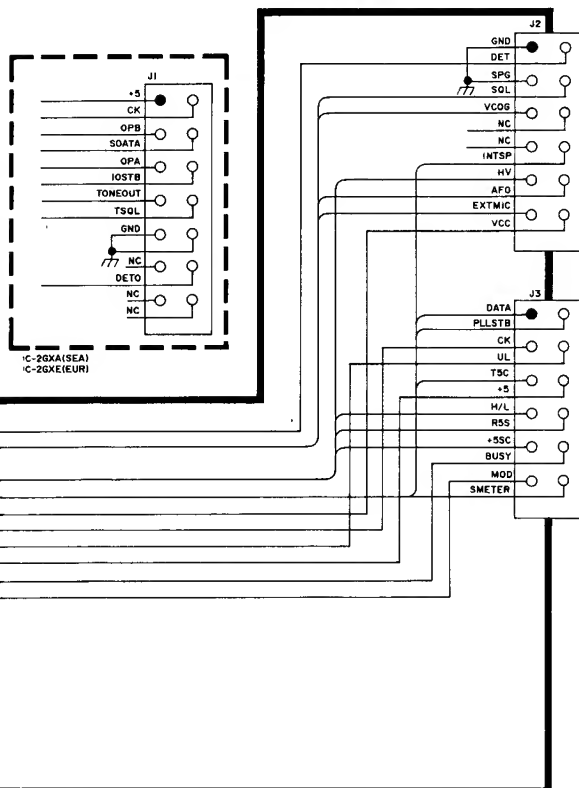
SECTION 10 BLOCK DIAGRAM

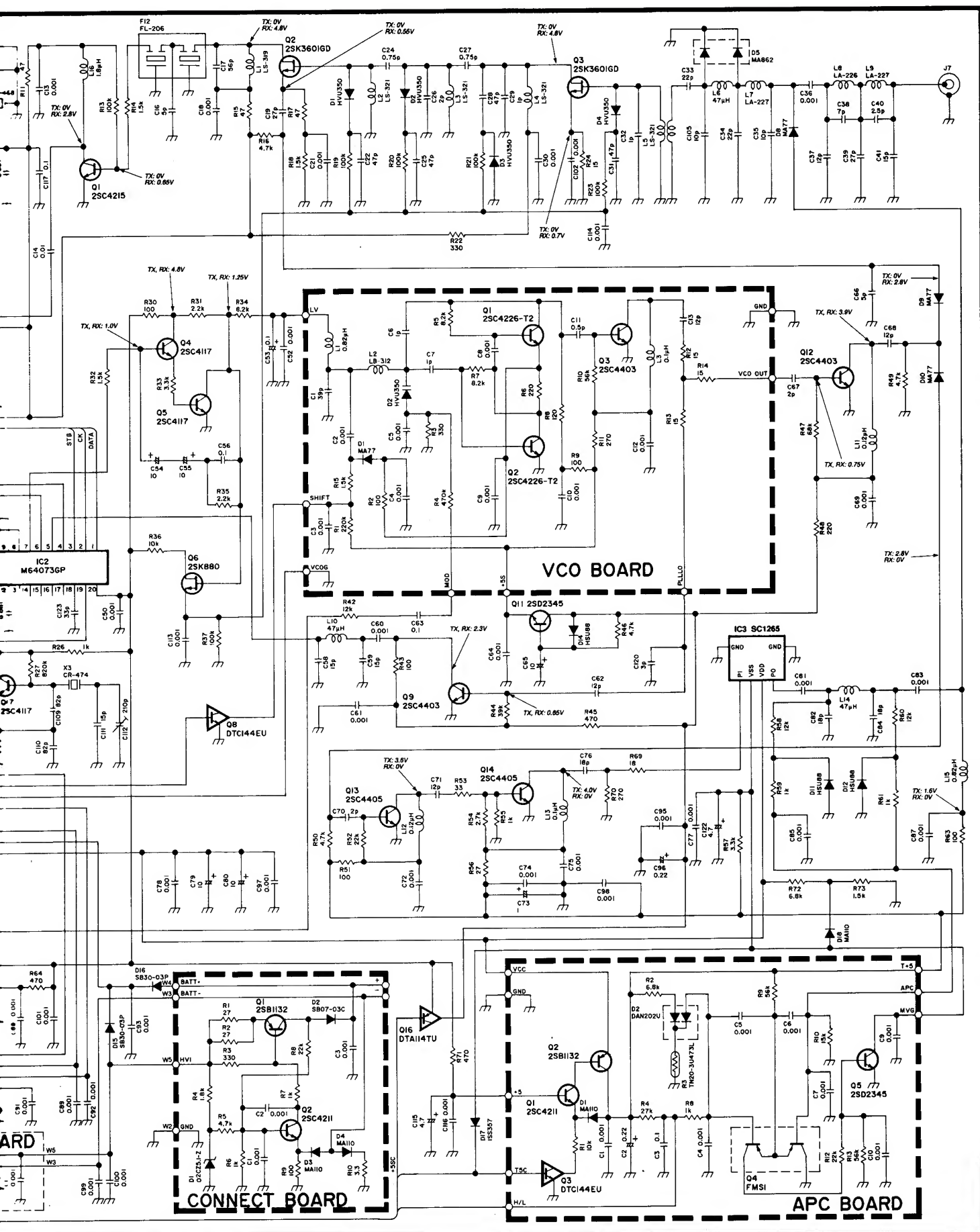


SECTION 11 VOLTAGE DIAGRAM









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